The Gas Journal

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Editorial Notes

A Feeling of Security

From the contribution of Mr. Arthur Hewitt, of Toronto, to the discussion on Mr. Carmichael's paper at the Institution Meeting, it is obvious that he considers the British Gas Industry is enjoying a good time, and that competition at present is merely a threat. We cannot agree that it is merely a threat; we think it is real enough. But there is no doubt that the competition will become more severe. In this regard Mr. Hewitt is convinced that, to combat this competition, we shall have seriously to consider monthly billing and machine accounting.

Conditions across the Atlantic differ in many respects from those obtaining here. Mr. Hewitt can hardly picture the chaos that would ensue if, in Toronto, bills were rendered quarterly, and then four or five weeks were allowed to elapse before a polite notice was sent to those consumers who had not paid. Comparison between Toronto and Portsmouth, however, is futile. Mr. Carmichael's system certainly cannot be at fault as far as bad debts are concerned—a matter of only 0·13% of the sales. But there are other questions to be taken into account when assessing the value of monthly or quarterly billing, chief among which are unquestionably: Does monthly billing enhance customer goodwill? Does it tend to increase consumption?

Conditions differ, too, in the areas of different undertakings in Great Britain, and while monthly billing may not appeal at Portsmouth, it may present quite a different aspect in other areas. And in all areas, we suggest, monthly accounts fit into curtailed family budgets much more easily than do quarterly accounts—a fact which the big stores well appreciate. Again, in all areas monthly accounts must give the ordinary man a greater feeling of security—he "knows where he is." And human nature being what it is a consumer might be able to settle a monthly account somewhat larger than one-third of what his quarterly account would have been. Against such gains has to be set, of course, any extra cost of monthly billing. We have said all along in these columns that circumstances differ, and that like treatment may not suit every case; but we do think that those who find the idea of short period accounts unattractive are too apt to look upon it from the sole point of view of accountancy, disregarding too lightly the effect on the majority of consumers.

Monthly Billing in England

We would not like Mr. Hewitt and his Canadian and American colleagues to retain the impression that no serious consideration has been given to the rendering of accounts monthly over on this side, or, indeed, that no action has been taken. The question has been fully ventilated in the columns of the "Journal," and we feel that there is a growing tendency among ordinary consumers to favour the monthly account, just as the past years have seen the prepayment-ordinary consumer ratio increase so greatly. As far as we are aware, the first undertaking in Great Britain to adopt monthly accounts was the Wellingborough Gas Light Company, Ltd., who commenced the practice as long ago as 1888, and has followed it ever since. Also as far as we are aware, the first undertaking in Great Britain to employ machine accounting for monthly billing was the South Metropolitan Gas Company, who, as far back as April of 1928, took the bull by the horns, installed the necessary machinery, and commenced to bill ordinary consumers monthly. In the following year we were invited to inspect the working of the new system, and we were certainly impressed by the remarkably efficient manner in which the Company render their accounts to approximately 115,000 consumers through ordinary meter. Experience of the system, we may add, has shown it to be generally popular among consumers in the Company's area—far more acceptable than the quarterly demand method previously in vogue. Prior to our inspection—before, in fact, we were aware of the move of the South Metropolitan Gas Company—we said in these columns: "Were quarterly payment of wages and salaries the general rule rather than the rare exception, there would be nothing to be said against the quarterly bill; but so long as the present system prevails, Lady Day, Midsummer Day, Michaelmas, and Christmas are bound to remain times of tribulation for the vast majority of people. That is to say, unless it be possible to do away with some of the quarterly accounts, or at any rate vary their incidence." Since then we have been glad to note that several undertakings have varied the incidence of their quarterly accounts by employing the economical and efficient method of continuous billing, which, though it may not go all the way to meet the wishes of the consumer, is certainly a help.

Monthly billing has also been adopted by the South Suburban Gas Company, who were followed by the Brighton Company.

Machines in the Office

There are many who look askance at the first cost of office machines, and many, too, are still inclined to the belief that they can only be adopted safely and economically by the large undertakings. Yet we have had good evidence from the smaller undertakings—anything from 300 millions a year—that the economical use of office machinery is not confined to the large undertaking. Our view is that a good deal of the time at present wasted could be saved by a more general adoption of office machinery. Nor is this the only point. Machines, be-

sides raising the efficiency of the routine work, are adaptable to many purposes other than the billing of accounts; and, once installed, they render changes of policy easier of accomplishment and result in a general tightening-up of the work of the undertaking concerned. As far as costs are concerned at the South Metropolitan Gas Company, Dr. Carpenter, the President, has stated that the machine system has entailed no additional expense.

There are factors in favour of monthly billing which are well worth repeating here. The public has a short memory. A consumer basking in the April sun receives a bill for gas used for heating in a cold spell in January, when the warmth and comfort of gas usage was fully appreciated. That is in the limbo of the past. What the consumer has before him is what he considers a large gas bill; and he complains to the gas undertaking. Had the account been presented at the time when he was enjoying the heating service of gas, in all probability he would have looked upon the account in quite a different light. Another factor is that monthly billing affords a means of checking wasteful consumption. This may incur a slight loss of revenue to the undertaking, but, taking the long view, it is on the satisfied user that the prosperity of any gas undertaking must rest. A further factor is that the system of monthly billing minimizes trouble in respect of stopped or non-registering meters.

At Halifax, Alderman Waddington, Chairman of the Gas Committee, has argued in favour of accounts being delivered every six weeks—we do not know with what measure of success. But lest anyone should think that twelve accounts a year are outside the bounds of practicability, we may recall that, for certain classes of consumer, the Portland Gas Light Company, U.S.A., have *weekly* accounts, and are delighted with the success of the system.

The Coke Market

THERE are two schools of thought on the question of the production and sale by gas undertakings of coke suitable for the open firegrate. One school asserts that gas undertakings should do all possible to market a satisfactory solid smokeless fuel for this purpose. The other school, in effect, says, Oh, no, leave it to somebody else. We agree with the first view, and it would take much argument to change our opinion. Our belief is that if we abandon the coke market we shall be harder put to it to sell gas. Our belief, too, is that both methods of attacking the problem should be exploited simultaneously. The first method is to provide a fuel which will burn with ease in any type of grate; the other is to provide the grate to suit the fuel.

As far as coke made generally in gas-works is concerned, the second is the easier way, but it will not cover the field. Carefully prepared and graded coke produced at high temperatures in gas-making plant will burn well in specially designed grates fitted with gas ignition. Indeed, the fact that 69,000 special grates were fitted in the London area last year speaks for itself. If ordinary gas coke can operate satisfactorily under these conditions, it follows that a fuel such as " Cleanglow " or " Dryco " will operate still more satisfactorily. There is much to be said for these special grates, and we hope that all gas undertakings are pushing them. As we have said, however, they only partially fill the bill. We must tackle the problem also from the fuel angle as distinct from the grate angle; and in this direction we have a long way to go and much to learn.

We appreciate that fuels such as " Cleanglow " and " Dryco " will burn readily in the open firegrate of the type ordinarily installed—that they will ignite without much difficulty using paper and firewood (though the gas poker is ever so much better) and that when the fire is replenished it will " come to life again " in a reasonable time. The radiant efficiency is, of course, higher than that of coal. An impartial observer, however, would, we think—and this is apart from considerations of price—in nine cases out of ten consider that low-temperature coke such as " Coalite " is easier to ignite, and that the fire responds more readily to additions of fuel throughout the burning period.

The Long View

ONE of the most important papers at the Institution Meeting was that by Eng.-Capt. J. Fraser Shaw, Chief Engineer, and Dr. J. G. King, Chief Chemist, at the Fuel Research Station, on the production of smokeless fuels; and we are very glad to know that they share our view, expressed on many occasions in these columns, that the Gas Industry must not leave the manufacture of combustible smokeless fuel to others. We are fully in accord with them when they suggest that the manufacture of a fuel sufficiently combustible for the ordinary firegrate would considerably widen the scope of the Gas Industry's effort—and this, we would add, without hindering the sale of gas. Mr. Gibson's pioneer work in Liverpool alone should provide incentive; and there are other examples. In Mr. Gibson's own words, " My own undertaking has created a market for a high-temperature fuel; the sales are readily increasing, and it seems there is the biggest market throughout the country for a fuel such as the one that we are producing." High temperature, medium temperature, or low temperature—provided there is a proper balance, we cannot see why a gas undertaking should be afraid of embarking on modified or new processes employing any temperatures, provided also that the fuel produce is easily combustible in the open firegrate. The public and the Gas Industry stand to gain in the long run. At the last general meeting of the South Metropolitan Gas Company Dr. Carpenter said that " the home consumption of coke is an increasing one. This is largely attributable to the fact, which is becoming increasingly manifest, that coke must be regarded not as a residual product, but as a manufactured one." And referring to " Metro-Coalite," the low-temperature solid smokeless fuel produced by the Company, Dr. Carpenter made the following significant observation: " *There is no doubt that it is a valuable adjunct to our other cokes.*" And it is significant, too, that a big demand for it has developed among the less affluent classes of fuel users.

A Vexed Question

CAPT. SHAW and Dr. King feel that plant designed for gas manufacture is not necessarily adaptable for making combustible smokeless fuel. It is their opinion that the gas engineer who wishes to make such smokeless fuel for the open firegrate would be well advised to install special plant, rather than to strive to adapt plant designed for another purpose. On the other hand, much can be and is being done by blending of coals and modifying slightly normal gas-works practice to produce what we may term a half-way fuel—a cross between a good old-fashioned horizontal retort coke and a low-temperature fuel. Much more, too, might be done by following up

the suggestion of Mr. Hodsman, of Leeds University, to improve the ease of ignition of high-temperature fuels by some form of coating.

The vexed question of the effect which volatile matter has on the efficient combustion of cokes in the open fire-grate is touched upon by Capt. Shaw and Dr. King in their written reply to the discussion, published in the "JOURNAL" for July 4—our Third Institution Number. Experiments have recently been carried out at the Fuel Research Station upon cokes which have approximately the same structure but which contain different amounts of volatile matter. A coke containing 8·5% volatile matter was better than one containing 2·7% in that it burned up more rapidly, it gave a more intense fire, and it gave distinctly longer, non-luminous flames which increased the draught through the fuel bed. And it is the opinion of Capt. Shaw and Dr. King that smokeless fuel must contain a certain minimum of volatile matter and that this should be distributed as uniformly as possible through the fuel. The minimum would appear to be about 4-5%.

The Hot Water Field

Now let us turn for a moment to the other important field of coke sales—the domestic hot water boiler. For water heating a high-temperature coke is eminently suitable. The Gas Industry can certainly fulfil the demands in this direction by suitably graded coke—*and uniform deliveries*. The *bête noir* in selling coke for domestic hot water heating is not the coke but the boiler. Thousands upon thousands of small houses have been erected, and sold over the counter, so to speak, complete with "constant hot water." The equipment consists of a microscopic boiler feeding, usually, a 20-gallon cylinder. Now obviously the merit of constant hot water is what the term implies; but with any type of coke it is often only a stroke of luck when a boiler of such diminutive proportions, after being charged at night—and with the best setting of the dampers—is found to be alight when the household rises in the morning. The coke is blamed for a fault for which it is in no way responsible, and the coke salesman needs to exercise much tact in endeavouring to impress upon the consumer the desirability—indeed, the necessity, if good service is to be obtained—of installing a boiler of adequate size to remain alight throughout the night. There is, of course, the alternative of fitting a hopper to the small boiler, and if the consumer will not, or cannot, install a boiler of proper size, this alternative should be pushed by the coke salesman.

We regard the boiler of inadequate size as a major problem confronting the coke sales department of every gas undertaking in the Kingdom, and we hope that no effort will be spared to bring home to builders, particularly of the speculative type, that they are lowering the value of their property out of all proportion by installing absurd equipment and advertising it as a "constant" hot water installation. After all, the difference in cost of a very small boiler which will not fulfil its function and of one of reasonable size is very slight indeed when one takes service into consideration. And we suggest that it is the fault of the organization of any gas undertaking if prospective house purchasers are not fully warned-off buying houses with inadequate coke boilers. Co-operation between the Gas Industry and the builders, *plus* insistence on the part of the buyer—an insistence which can be developed by educational work by the Industry—would quickly put a stop to a wholly unsatisfactory practice which benefits nobody.

The Woman's Viewpoint

IT was clear from the Institution papers and discussions that considerable impression had been made on the minds of many of the delegates to America last year by the Home Service departments of the gas undertakings over there. These are, of course, aimed at helping, and so pleasing, the woman consumer, but, if you consider the matter carefully, this comprises practically the whole of the domestic load. Bachelor gas consumers are a very small proportion of the whole, and even their household affairs are largely ordered by mothers and sisters.

The Home Service section idea seems, therefore, a promising line of development in this country, and, even if much has been done in some of the larger or better organized undertakings, a national lead would certainly, in our opinion, be of great value to others. It goes without saying that any general effort will not be worth while unless well done, and on lines suited to the mentality of our countrywomen. In this connection it is well to note that our Industry, if it has been slow in starting in this direction, at least has the advantage of having before it the experiences of others. In addition to the recent opportunity of studying American methods, there are the activities of the Electrical Association for Women which have been there for a number of years for all to study. Gas interests have been rather inclined to overlook, if not to smile at, the activities of this branch of electrical propaganda. Unless the smiles were merely the sneers of the fox when he discovered that the grapes were out of reach, we shall expect an advance on anything of the kind which has been attempted in this country if and when the Gas Industry does embark upon an organized effort to retain and increase the affections of our womenfolk.

The organizers will have some hard thinking and planning to do, and we trust that individual undertakings which are enthusiastic to make a beginning under guidance will not expect too much all at once from their guides, just as we hope that the latter will not be carried away to move too quickly under the glamour of what has recently been seen in America. Practice there has been built up over a considerable number of years, and it will take a wise woman to sort out what activities will be pleasing to the women here and what will not. As only a small example, we have our grave doubts as to how good old British Mrs. Smith would regard the "free" use of premises at the gas showrooms for her bridge party if she and her friends had to break off at half-time and swallow any such obvious propaganda as an address by an employee of the undertaking.

These thoughts are inspired by the obvious enthusiasm for a *cherchez la femme* campaign which has been manifest since the American tour, but beyond this we have a shrewd suspicion that the enthusiasm will, before very long, be crystallized into some shape of activity on the part of the national bodies. The movement when it comes will have our hearty support; we have always stressed the importance of the appeal to women, especially in our junior paper, the "GAS SALESMAN," where the "Woman's Viewpoint" has been a popular feature for four years—and not alone among the women members of the Industry, as we have good cause to know.

In the organization of Home Service, or whatever name it is to have in this country, there appears to be every opportunity for the exercise of those virtues which are claimed for amalgamation or grouping. Those who are unfortunate enough (or fortunate according to the viewpoint) to be left outside the big corporations will

do well to give careful consideration to any suggestions which are made nationally.

Amalgamation Proceeds Apace

THE mention of amalgamation and grouping reminds us that matters continue to move apace, and news continues to arrive from all quarters. We were able to record last week that the Hastings and St. Leonards Directors had recommended acceptance of an offer by the South-Eastern Corporation. Is this a " smaller " undertaking within the meaning of the National Gas Council policy? Will the join-up, if consummated, benefit the Hastings consumers, the Hastings Company, the Corporation, the Industry in general? All four, we hope, but these are difficult questions we are asked to answer in these days.

And then we recorded, also last week, that a new monster had raised his head. (We had perforce to correct a friend whose description of it was a " new octopus." Octopi do not raise heads, and in any case a monster *can* be benevolent, which an octopus never is.) In Gas Consolidation, Limited, there are, however, grounds for solid satisfaction in the announcement that the Imperial Continental Gas Association is to subscribe privately for at any rate part of the share capital. A very substantial part, we hope, because the Association have a history and a tradition in the Gas Industry which has been universally respected ever since they secured a contract over a century ago to light part of Berlin—a contract which, we believe, was granted in perpetuity, and was ended only by the war which put an end to so many perpetuities. They have a tradition for British fair play which stood them in good stead even in Germany in the darkest days of the war. Moreover, their extremely successful commercial career has been entirely based upon the amalgamation of gas undertakings in various countries of Continental Europe, which should make it child's play to them to group with success undertakings merely speaking the different county dialects of England.

Gas Consolidation has made a quiet beginning with Lichfield and Tamworth—two undertakings more of the size which we had always regarded as " smaller," and, without disrespect for their efficiency, of the size which, in the interests of the Industry, might well be considered fit subjects for grouping under a larger concern. We have little doubt that the Corporation will buy them a parent in the near future.

Lastly, we recorded a proposal made to the Malvern Urban District Council that they should sell their gas undertaking to one of the active groups. This is an extremely interesting development, and though the proposal was turned down by the Council, the Industry will be all agog to hear of the first success scored by a group in the direction of securing a municipal gas undertaking. It is quite clear, with the wide and indiscriminate geographical distribution of municipal works, that grouping cannot proceed very far in the best interests of the Industry without absorbing some of them, yet we feel they will be elusive fish.

Gas at "The Royal"

ON other pages of this issue is an illustrated description of the excellent display arranged by the Ipswich Gas Light Company in connection with the Royal Show at the beginning of this month. Some may ask what particular connection gas has with a show of that kind, and why they should join with us in congratulations and thanks to the Ipswich Company and Mr. Sumner, and the many appliance makers who helped them in organizing a first-class exhibit.

In the first instance we should reply that gas must have a place whenever possible in every national event, and " the Royal " is quite definitely an annual national event. There are many who do their four days at Ascot every year as a matter of course. There are others who would rather trek from Loch Ness than miss a cup final. Equally there are those to whom a visit to the Royal Show is almost a religion. There is, for example, the dwindling class of landed proprietor, the city man who runs his small farm as a side line or a diversion, and the whole-time professional farmer. All these visit the Show in large numbers; all are difficult to attract by ordinary methods open to the salesman; all should be capable of interest in gas, whether for home comfort or for such purposes as bottle sterilization, whenever a gas supply is available to them; and, last but not least, all are in the agricultural class which is being, and will continue to be, the subject of ardent wooing by the sponsors of the grid.

The Royal Show is, therefore, almost the occasion for a national gas effort. The Industry should be grateful in this instance to the Ipswich Company and those who helped them to shoulder the responsibility. In less fortunate circumstances we should commend the event for the attention of the B.C.G.A.

Forthcoming Engagements

July 23.—I.G.E.—Joint Research Committee, 2.30 p.m.
July 24.—I.G.E.—Liquor Effluents and Ammonia Sub-Committee, 11 a.m.; General Research Committee, 2.30 p.m.
Aug. 14.—IRISH ASSOCIATION.—Annual Meeting in Belfast.
Sept. 1-4.—SECOND INTERNATIONAL GAS CONFERENCE, Zurich.
Sept. 6.—NORTH BRITISH ASSOCIATION OF GAS MANAGERS.—Annual Meeting in Inverness.
Sept. 11.—I.G.E.—Finance Sub-Committee, 9.45 a.m.; Membership Sub-Committee, 10.30 a.m.; General Purposes Committee, 11.15 a.m.; Gas Education Executive Committee, 4 p.m.
Sept. 20.—I.G.E.—Refractory Materials Joint Sub-Committee (Stoke-on-Trent), 2.30 p.m.
Sept. 20.—WALES AND MONMOUTHSHIRE ASSOCIATION OF GAS ENGINEERS AND MANAGERS.—General Meeting at Porthcawl.
Sept. 24-26.—B.C.G.A.—Annual General Meeting and Conference at Sheffield.
Sept. 27.—I.G.E.—Liquor Effluents and Ammonia Sub-Committee, 2.30 p.m.
Sept. 28.—I.G.E.—Joint Research Committee, 10.30 a.m.; General Research Committee, 2.30 p.m.
Nov. 6 and 7.—I.G.E.—Autumn Research Meeting.

1934 "JOURNAL" Directory.

Page 88. MOFFAT. H. D. L. Simmons appointed S. vice J. Johnstone, deceased.
Page 125. BOLTON. H. Hamer appointed Public Lighting Superintendent vice R. Taylor, deceased.

Correspondence

The Gas Unit

SIR,—I was pleased to see your Editorial Notes in your issue of July 11, with regard to the above, as it ventilates what we in the West Riding consider to be a very important subject.

There is, however, a statement in the first few lines of your Notes which I think is incorrect, wherein you state: "This question was really brought out into the open in May of 1930 when Mr. R. D. Keillor, of Greenock, staunchly advocated in the "GAS SALESMAN" the adoption of the small unit, and urged the Gas Industry to lose no time in coming to a decision as to what this unit should be."

A meeting of a Special Gas Charges Committee was personally convened by me in Leeds on March 19, 1930. There were present, Messrs. H. E. Bloor (York), A. L. Jennings (Spenborough), C. H. Mitchell (Leeds), E. J. Fottrell (Joint Manager, National Gas Council), J. R. W. Alexander (Secretary, Institution of Gas Engineers), J. E. Lister Cooper (Yeadon, Secretary), and myself in the chair. There were three subsequent meetings which were attended by Mr. W. B. McLusky (Halifax), but not by Mr. Alexander. Mr. Fottrell attended all.

The Minutes of the March 19, 1930, meeting contain the following:

> "Mr. Jennings (Spenborough) proceeded to advocate charging for gas per unit, in exact comparison with electricity—viz., 3,412 B.Th.U. This would enable the Gas Industry to refer to gas in a comparable manner—
>
> *e.g.* Gas at 10d. per 100,000 B.Th.U. (Therm)
> ,, 1d. ,, 10,000 ,, ,,
> ,, 0·34d. ,, 3,412 ,, (Unit)
>
> This would give us an advantage over electricity, who would then have to explain why the price of electricity per unit was greater than that of gas. He stated the public did not understand the therm basis, and for that reason they disliked and distrusted it."

Halifax adopted the "unit" in the autumn of 1930.

As an outcome of these meetings, at the final meeting on May 2, 1930, the following recommendations were sent to the National Gas Council:

1. That the Gas Industry should have the same powers of charge as are possessed by the electricity industry, and thus be enabled to adopt such multi-part of other tariffs as, in the opinion of individual gas undertakings, are best calculated to enhance their usefulness to the community they serve.
2. That the unit of charge for gas should contain the same number of B.Th.U. as are contained in the Board of Trade electrical unit—viz., 3,412 B.Th.U.
3. That a consumer contracting to purchase a specified quantity of gas coke should be entitled to preferential terms as against other consumers using gas in like circumstances, but not entering into a contract.
4. That the National Gas Council should consider whether the operation of these tariffs should be optional or not.

The Monthly Report of the National Gas Council, dated June 30, 1930 (p. 138), mentions these recommendations. The National Gas Council subsequently had the subject before them and collaborated with the Institution of Gas Engineers at a Joint Committee which reported in February, 1931.

I suppose everyone knows that Dr. Carpenter was responsible for the introduction of the therm method of charge, and I think it only fair to Mr. A. L. Jennings, who, in our opinion, first raised the proposal of charging on the "unit" basis, that the above facts should be made known.

Additionally, he and other members of our District Board supported the subject when I again raised it at the last April meeting of the Executive of the National Gas Council in London.

Yours, &c.,
C. S. SHAPLEY,
Chairman,
Yorkshire (West Riding) District Executive
Board of the National Gas Council.

City of Leeds Gas Department,
July 13, 1934.

Production of Smokeless Fuel at Medium Temperatures

SIR,—Dr. J. G. King and Eng.-Capt. J. Fraser Shaw, in their reply to the discussion on their paper read before the Institution of Gas Engineers, say that they do not agree fully with my claims in regard to blending, and suggest that I fail to appreciate the difference in technique and treatment in what they regard as two processes, but on which I expressed some doubt.

When I contributed to the discussion, I was under the disadvantage of not having had time to digest their valuable paper, as I received it only two hours before the meeting. I have since studied it carefully, with interest and profit, and I trust that what criticisms I have to offer will not be regarded as intended to minimize the value of the important fundamental large-scale research on which they are now engaged. I am well aware that some people have endeavoured to throw a cloak of infallibility on the Staff of the Fuel Research Board, but this is not a mantle which they themselves would assume. They would be very unwise if they did. Moreover, technical and business men would cease to attach any value to their work if critical examination were forbidden.

The two systems which they have described must be considered together, in order to be able to draw correct comparisons. Let me first deal with their deductions recorded on p. 25 of their paper. Referring to the paper which Koppers read before the Institute of Fuel last October, they deduce from his curves that with a chamber oven having a *mean* width of 11 in. and with a *mean* flue temperature of 750° C. the coking time would be 18 hours. They then go on to say that in the static retort which they employ, in which the width at the top is 9½ in., and 12½ in. at the bottom, with a top temperature of 650° C., and 850° C. at the bottom, they effect carbonization in 20 hours, and state: "This period compares with the 18 hours deduced from Koppers' experiments."

It is clear that they indicate that these results are not in agreement with those of Koppers, whereas in fact there is absolute agreement, as I will show. Koppers did not mention *mean* widths or *mean* temperatures. Whatever the mean width of a static retort may be, and the temperature at that point, we are governed by the *maximum* width and the temperature at *that* zone. We must get the heat through the thickest part of the charge. In the static retort in question this is 12½ in., and the temperature there is 850° C. Now, if we refer to Koppers' curves, we find that with a width of 12½ in. and temperature of 850° C. the coking time should be 20 hours, which is precisely the result obtained at the Fuel Research Station. They therefore confirm the accuracy of the curves in question.

Coming now to the continuous retort, it follows that the governing factors as to coking time and throughputs, with a given coal, are the same—namely, thickness of the charge and the temperature. For instance, there is no point in comparing the throughputs of a retort 7 or 8 in. wide, heated at, say, 1,100° C., with one 10 or 11 in. wide heated at, say, 800° C. Any comparison between static and continuous retorts must start on common ground, not only as regards widths and temperatures, but the same coal must be used, and in the same condition in each. If the static retort were 7 in. wide and the flue temperatures 1,100° C., Koppers' curves show that the coking time would be 4 hours only, instead of 20 as at present.

Further, the actual *carbonizing* temperatures in both retorts must be considered in order to determine what heat treatment the fuel has undergone, as in one case the *carbonizing* temperature may be 100° C. lower than in the other, depending on the rate of travel of the coal through the retort. In the intermittent retort the fuel may be de-gasified so as to leave only 4% of volatile in the coke, while the continuous retort may discharge the fuel while it still contains 8% of volatile. A common denominator is called for in any comparison of the two systems.

Regarding the distinction in the processes, so long as the continuous retorts employ sized or unsized "straight" coals, and the intermittents employ blends of slacks, there *is* a distinction; but when in both cases blends of coking coal and non-coking coals of certain types, with or without breeze, are carbonized at medium temperature only one process is involved, which is protected by patent. The

system of carbonizing may differ, in that a static horizontal or vertical retort may be employed, or a continuous vertical, or even a rotary retort may be used. I venture to think that there will not be disagreement between the authors of the paper and myself on this point, but I admit that in the discussion I did not elaborate this sufficiently.

Allow me to conclude by again expressing my keen appreciation of the interesting and valuable work now being carried out at the Station.

Yours, &c.,
JOHN ROBERTS.

5, Victoria Street,
Westminster, S.W. 1,
July 13, 1934.

Personal

PRESENTATION TO MR. RALPH E. GIBSON.

An interesting event took place on July 5 at the Offices of the Liverpool Gas Company when Mr. Ralph E. Gibson, M.Inst.C.E., the Chief Engineer of the Company, was presented with a silver tea-tray by his staff, as a token of their respect and esteem on the occasion of his completion of 30 years' service.

All the Superintendents of the works and departments were present, together with members of Mr. Gibson's personal staff, both technical and clerical. The presentation was made by the Assistant Engineer of the Company, Mr. Ernest Astbury, who was supported by Mr. S. Carter, the Superintendent of the Linacre Works, and Mr. J. Charnley, who recently retired from the position of Superintendent of the Wavertree Works. Testimony was borne to the kindness and consideration Mr. Gibson had always shown towards those under his control, and to the warm regard and affection in which he is held by all the members of his staff. Reference was also made to the great changes introduced by Mr. Gibson in the manufacturing plant under his charge, by the adoption of modern systems and labour-saving appliances, and to the large extensions at the works including the new coal gas plant at Garston, also to the services he had rendered to the Gas Industry and the great honours which had been so deservedly bestowed upon him. The hope was expressed that Mr. and Mrs. Gibson might long live to use the gift which had just been presented.

The gift bore the inscription:

Presented to Ralph E. Gibson, Esq., M.Inst.C.E., M.Inst.Gas E., President of the Institution of Gas Engineers, 1932-33, by the Members of his Staff as a token of their respect and esteem on completion of 30 years' service with the Liverpool Gas Company, 30th June, 1934.

Mr. Gibson, in reply, paid a tribute to the valuable help he had always received from the various members of his staff in carrying on the work of the Company.

* * *

Mr. HENRY HAMER has been appointed Public Lighting Superintendent at Bolton in succession to Mr. R. Taylor whose death took place recently.

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Mr. JOHN CHARNLEY, Superintendent, and Mr. D. W. WILLIAMS, Chief Clerk, of the Wavertree Station of the Liverpool Gas Company, retired on June 30 last. Mr. Charnley joined the Company in 1884, while Mr. Williams has forty-nine years' service to his credit. The several presentations of parting gifts evidenced the esteem in which the retiring officials were held.

* * *

Mr. A. C. TAYLOR, Secretary and Commercial Manager of the Royston and Brodsworth Gas Company, is leaving the district at the end of July to join the Horstmann Gear Company, Bath. Having served an articled pupilship at Morecambe Corporation Gas-Works, and then acted as assistant, Mr. Taylor went to the Colombo (Ceylon) Gas and Water Company, from 1913 until 1920. On returning to England, Mr. Taylor obtained the position of Engineer and Manager of the Royston and District Gas Company, and he held this position until the formation of the Royston and Brodsworth Gas Company in 1931, when he was appointed to his present position. Mr. Taylor is an apostle of publicity and propaganda, and, as a result of his efforts, the sales of gas in the Royston district have practically doubled under his management.

* * *

In last week's "JOURNAL" (p. 94) we stated that Mr. WILLIAM OLIVER KIRKWOOD, Assoc.M.Inst.Gas E., of the Hendon Gas-Works, Sunderland, had been elected an Associate Member of the Institution of Chemical Engineers. Actually, he has been elected to the Graduate Class.

* * *

Mr. E. J. FOX, of the Stanton Ironworks Company, Ltd., recently Chairman of the Society of British Gas Industries and a prominent member of the Council, has been elected Chairman of the Central Pig Iron Producers' Association.

* * *

The Co-partnership Journal of the South Metropolitan Gas Company states that Mr. E. LEE, of the Physical Laboratory, has been admitted to the Degree of Master of Arts of the University of Cambridge.

* * *

Mr. G. E. HOLMES, who was among the successful students in the June degree examination in Gas Engineering at Leeds University and obtained B.Sc. (Honours), 1st Class, has been appointed Research and Technical Assistant in the Gas Sales Department of the Newcastle-upon-Tyne and Gateshead Gas Company.

* * *

Commenting on the Annual Report for 1933 of the Chief Inspectors of Alkali, &c., Works ("JOURNAL" for July 4, p. 22) we inadvertently attributed a doctorate to Mr. W. A. DAMON, Chief Alkali Inspector for England and Wales, which in fact he does not possess. We apologize to Mr. Damon for the error.

* * *

Mr. J. G. CUTHBERT, Assistant Gas Manager at Airdrie, has been presented with a wireless set by employees and officials of the Burgh on the occasion of his marriage. The presentation was made by Mr. A. Kellock, the Gas Engineer and Manager.

* * *

Mr. HUGH D. L. SIMMONS has been appointed Secretary of Moffat Gas Company in succession to the late Mr. James Johnstone.

Obituary

PROF. H. F. W. BURSTALL.

A great deal of research work in connection with the gas engine was carried out by Prof. H. F. W. Burstall, who died in Birmingham on Sunday, at the age of 68. Over twenty-five years ago he carried out experiments on behalf of a Special Committee of the Institution of Mechanical Engineers in regard to the gas engine. Considerable success attended his work, which resulted in the construction of gas engines of much greater efficiency and economy than those then in use. Prof. Burstall achieved distinction at that time by running an engine which gave a thermal efficiency of 43%, compared with the 37·5% previously obtained. He was a frequent lecturer on gas to engineers and others interested in the subject, and was for a time Gas Examiner for the Birmingham Corporation.

Prof. Burstall was born in Aberdeen, and spent much of his early life in London, where he entered the engineering profession in 1881. He studied at University College, London, and St. John's College, Cambridge. He went to King's College, London, as demonstrator in Mechanical Engineering, and proceeded to Birmingham in 1896 as Professor of Engineering. During the war Prof. Burstall carried out a number of important experiments for the Government. He tested and looked after the large gas engines at Messrs. Newton Chambers, near Sheffield, and also took part in the experiments for the extraction of benzole at a number of collieries in South Derbyshire. He became Vice-Principal of Birmingham University in 1925, and retired upon reaching the age limit five years later.

Institution of Gas Engineers.

Meeting of Joint Research Committee.

The Secretary of the Institution of Gas Engineers states that it will be necessary to hold the meeting of the Joint Research Committee on the afternoon of Monday, July 23, instead of on the following morning, in order that the Liquor Effluents and Ammonia Sub-Committee may meet on the morning of Tuesday, July 24, instead of the previous afternoon.

British Standard Specifications.

Copies of the following recently issued British Standard Specifications may be obtained price 2s. each, from the Secretary of the Institution of Gas Engineers, 28, Grosvenor Gardens, London, S.W. 1:

No. 485-1934—Tests on Thin Metal Sheet and Strip.
No. 556-1934—Cement Concrete Cylindrical Pipes and Tubes (Not Reinforced).

News In Brief

Gas Cooker Sales effected on hire purchase terms by the Lincoln Gas Department during the past seventeen weeks have reached the remarkable figure of more than 1,500.

Glasgow Corporation Gas Department's Band took first place in the confined section and second place in the Championship Section at Strathaven Band Contest on July 7.

During Last Winter's Session 1,041 employees of the Watford and St. Albans Gas Company attended the various evening meetings of the " Salesmen's Circle " organized by the Company.

A Tender Has Been Accepted by the Bangor Gas Committee for £3,225 for a complete new gasholder of 100,000 c.ft. capacity, complete with foundations and coupling up on the site adjacent to the meter house.

A Five Years' Contract for the street lighting of Pershore has just been accepted by the local Lighting and Watching Acts Joint Committee on the tender of the Cheltenham and District Gas Company.

A Spherical Holder has recently been completed by a German concern at the gas-works at Ostend. The holder has a diameter of 61½ ft. and has a storage capacity of about 700,000 c.ft. at a pressure of six atmospheres.

Over 1,400 Visitors attended an exhibition organized by the Canterbury Gas and Water Company, and there were 152 entries for the cake-baking competition from gas consumers within the Company's area of supply.

An Improved System of Street Lighting is the subject of a five years' agreement just entered into between Saltcoats Gas Company and the Town Council. Another scheme of promenade lighting has also been agreed to.

Canterbury Gas Stock fetched good prices at an auction sale at Canterbury recently, over £600 worth of stock being rapidly sold in lots of £10. These lots realized on an average £20 5s. each, which is the highest price obtained for many years.

The Jedburgh Gas Company, which this year celebrates its centenary, is to reduce the price of gas from 5s. 5d. per 1,000 c.ft. to 5s. It was stated that the consumption of gas during the past financial year was the largest in the history of the Company.

Therm or Unit? is the title of an admirable booklet recently issued by the Penrith U.D.C. Gas Undertaking, offering consumers plain facts about the relative costs of gas and electricity for all domestic purposes calculated on the basis of current charges.

Topical Cookery Booklets are a feature of Radiation service after sales, and very appropriately they have just issued " Appetising Dishes for the Hot Days," which is fully up to the standard set by previous favourites such as " Supper Dishes," " Better Breakfasts," &c. Admirable propaganda.

To Meet Complaints from residenters in Milton of Campsie regarding the price of gas supplied by Kirkintilloch Town Council, for which 2s. 3d. per 1,000 c.ft. is charged over the rate for consumers within the Burgh, the Council is putting forward a proposal for a flat rate of 25s. extra per annum.

The Travelling Showroom of the Bradford Corporation Gas Department was utilized as an exhibition stand at the Yorkshire Agricultural Show at Bradford from July 10 to 12. The Department also supplied service pipe, ovens, and hot water equipment for Messrs. Spinks, Ltd., who had the task of catering for upwards of 100,000 visitors.

The Wallasey Gas Committee recommends that capital expenditure amounting to £5,000 be incurred early in 1935 on the laying of a new 9-in. cast-iron gas main along Leasowe Road from Wallasey Village to connect direct into the existing main, and that application be made to the Ministry of Health for sanction to borrow the sum of £15,000.

The Irish Association of Gas Managers are holding their Annual Meeting on Aug. 14 at Belfast, under the Presidency of Mr. J. L. Hyslop. Papers are to be read by Messrs. J. H. Allen, C. W. Surman, and T. Tallentire, while the Annual Dinner takes place in the evening at the Grand Central Hotel. On the following day a golf competition will be held in addition to an excursion to Portrush.

An Inquiry Has Been Concluded by the Northern Ireland Ministry of Home Affairs into the application of the Lurgan Town Commissioners for loans of £4,000 for the working capital of the local Gas Department and £2,000 for the extension of gas mains. There is also a supplementary application for a loan of £1,200 for the extension of the gas mains to Dallington—a village outside the town boundary.

Coke Oven Gas in Bulk will be supplied to Mansfield Corporation Gas Undertaking by the Grassmoor Colliery Company if the Corporation are successful in obtaining a special order permitting the laying of a main eleven miles long. The proposal to reconstruct the Mansfield Gas-Works at an estimated expenditure of £74,000 was abandoned in view of the heavy cost involved, compared with the cheaper alternative of a bulk supply.

Price Reductions recently announced include Buckhaven and Leven (by 2d. per 1,000 c.ft. to 3s. 9d., successive reductions having brought the price down from 7s. 1d. per 1,000 since 1922); Dunfermline (by 2d. to 3s. per 1,000, with certain discounts); Horncastle (by 5d. to 4s. 7d. per 1,000, this being the third reduction of 5d. in two years); Droitwich (by 2d. per 1,000 c.ft.); Stirling (by ½d. per therm); Burntisland (by 2½d. per 1,000 c.ft., making 3s. 4d.).

The Irish District Executive Board of the National Gas Council will meet at Belfast on Aug. 14, to which members of the Irish Association of Gas Managers, who are holding their Annual Meeting on the same day, are invited. Mr. J. D. Smith, of Belfast, will take the chair at 3 p.m., and at the conclusion of the formal business, Mr. E. J. Fottrell, of the N.G.C., and Mr. W. D. Rowe, of the B.C.G.A., will address the meeting on the subject of the work and objects of these two bodies.

New Company Registrations at Somerset House for the first six months of 1934, compiled by Messrs. Jordan & Sons, Ltd., of Chancery Lane, W.C. 2, include 261 gas, water, and electricity undertakings with an aggregate capital of £2,684,165. In summarizing facts and figures relating to the new companies, Messrs. Jordan refer to the queer name of one recent registration—namely, " Kubist Konstruction Company "—commenting that they " kan't konceive why the konstruktor didn't have the kourage of his konvictions and spell the penultimate word ' Kompany ! ' "

Western Junior Gas Association.—Some 40 members of the Association enjoyed the hospitality of the Minehead Gas Company for their summer outing on July 7. The visitors met at Bridgwater Station, and, led by Mr. E. V. Dunn (Manager of the Minehead Company), were driven through the beautiful Quantock Country to the Gas Company's Showroom. The inspection of showrooms and works followed and proved extremely interesting, after which the party partook of tea at the Strand Café. The thanks of the Association were expressed by Mr. S. Hole (President) and responded to by Mr. E. V. Dunn and Mr. Burgess (Director).

A Proposal to Purchase the undertaking of the Sunderland Gas Company received some opposition at a recent meeting of the Sunderland Town Council. This was consequent upon the recommendation of the Special Sub-Committee (formed to report on the matter) to engage an expert to study certain aspects of the question. It was stated that the Company would be unwilling to sell and that the price would therefore be high, while the view was also expressed that if the Council owned the works they would not be able to produce cheaper gas than the Company were providing at present. After discussion, the recommendation to engage an expert was agreed to by a majority.

An Instructive Address on the work of the Gas Industry was given on Friday by Councillor W. Muter, Convener of Edinburgh Gas Committee, at the weekly luncheon of the Edinburgh Rotary Club in the North British Station Hotel. Referring to the Edinburgh Undertaking, Councillor Muter said that from the capital account the total expenditure had amounted to over £3,000,000, of which nearly £2,000,000 had been repaid. Some 200,000 tons of coal were carbonized annually at Granton, and in the busiest season 900 tons of coal per day were used. Gas was at present distributed over an area of about 50 square miles, and they hoped to reach out, when they got the power, into the Lothians.

Sir Arthur Duckham Memorial Fund.

Official List of Donations from July 7 to 13.

Name and Town.	Amount. £ s. d.
J. R. Duggan, Sydney, Australia	1 1 0
James A. Maclay, Glasgow	2 2 0
Lt.-Col. H. W. Woodall, C.I.E., London	10 10 0
Donations (3) paid above	£ 13 13 0
Donations (619) paid previously ...	£10,348 19 2
Total Donations (622) paid...	£10,362 12 2
Donations (3) promised	209 0 0
Total Donations (625) paid or promised...	£10,571 12 2

Our photograph depicts a tableau arranged by the Swindon United Gas Company, which was awarded second place in the Swindon Hospital Carnival held recently. Two members of the Company's staff are seen on the decorated lorry.

Amalgamation and Grouping.

Swindon and Wootton Bassett.

The shareholders in the Wootton Bassett (Wiltshire) Gas Company have accepted an offer of the Swindon United Gas Company to take over the capital of the former undertaking. The negotiations have been in progress for some time, and a decision has just been arrived at. The Wootton Bassett Company's shareholders will receive £10 for each £5 share. The Swindon Company took over control a week ago. Later, it is expected that Wootton Bassett residents will be supplied direct from the Swindon Company's Works, six miles distant.

Negotiations are in progress for the taking over of several other gas undertakings within a few miles of Swindon, and it will be necessary for the Swindon Company to lay an additional 37 miles of mains, bringing the total mileage up to 120. Application has been made to the Board of Trade for permission to extend the limit of supply to bring some 14 towns and villages into the Company's area of supply.

The North British Association of Gas Managers.

Preliminary Notice of Annual General Meeting.

The Annual General Meeting of the Association will be held in the Town Hall, Inverness, on Thursday, Sept. 6, 1934, under the Presidency of Mr. Lewis Bain. The usual annual excursion will take place on the following day, Friday, and will take the form of a motor tour via Loch Ness, Drumnadrochit, Glen Affric to Strathpeffer, where lunch will be served.

The Council of the Association have nominated Mr. James Jamieson, Edinburgh, for the office of Junior Vice-President.

The Town Council of the Royal Burgh of Inverness will accord a civic reception to the members and their lady friends in the Northern Meeting Rooms, Inverness, on the evening of Thursday. The reception will commence at 8 p.m. A drive to Culloden, Cawdor, and Nairn is being arranged for ladies on the Thursday.

Golf and Bowling Competitions.

The golf competition for the Association Challenge Bowl will take place on Wednesday, Sept. 5, over the Culcabock Golf Course.

By courtesy of the Inverness Bowling Club, the bowling competition will take place on Wednesday, Sept. 5, on the Inverness Bowling Green, at 2 p.m. During the afternoon, ladies attending the meeting will meet at the Bowling Green, where Mrs. Bain will be " At Home " and afternoon tea will be served.

A golf competition for ladies will also take place on Wednesday.

Exhibition and Cookery Lectures at Abertillery.

Abertillery Gas Department recently held a successful exhibition, which was well attended. The Chairman of the Gas Committee, Councillor J. Day, in opening the exhibition, said that he wished to introduce to those present, Mr. H. Maycock, who lately succeeded Mr. I. G. Jenkins, as Engineer and Manager. Mr. Day stressed the importance of maintaining a good gas consumption, since all the coal carbonized at the Works was mined locally. At the conclusion of the last cookery demonstration, Mr. H. Maycock proposed a vote of thanks to Miss Andrews, who conducted the cookery lectures, and to Messrs. R. & A. Main and their staff for their whole-hearted support, which had helped the consumers towards obtaining the maximum results from their appliances with a minimum of expenditure. From left to right in our photograph are: Miss Andrews, Councillor J. Day, and Mr. H. Maycock.

Slow Electrical Progress in Lincolnshire.

Is electricity a disappointment to its purveyors in Lincolnshire? The summer meeting and luncheon of the Mid-East England Area Executive Committee of the British Electrical Development Association was held at Grantham last week.

Proposing the toast of " Electricity in Lincolnshire," Mr. S. E. Fedden, Manager of the Mid-East England area of the Central Electricity Board, remarked that too many people feared electricity as something mysterious, and they must be taught that electricity was the safest, cheapest, and most widely adaptable commodity in existence.

At Stamford he was amazed at the poor development. For a town of its size there should be at least double the number of consumers; owing, doubtless, to the unsatisfactory tariff, electricity was regarded there as a luxury and electric cooking and water heating were almost unheard of. Grantham did not appear to have been alive to develop-

ment. Apparently the general impression there was that electricity was dear, but whether or not the Town Council exercised their option of purchasing the undertaking, real live steps must be taken to cater more generally for the townspeople.

Mr. F. H. Brandreth, Engineer and Manager of the Grantham branch of the Urban Electric Supply Company, replied, and, in defending the position in Grantham, attributed the comparatively slow progress made to the heavy initial outlay encountered 31 years ago.

National Gas Council

Meeting of Central Executive Board.

A meeting of the Central Executive Board of the National Gas Council was held at 28, Grosvenor Gardens, S.W. 1, on Tuesday, July 10, at 2.30 p.m. Sir DAVID MILNE-WATSON, LL.D., D.L., was unanimously re-elected Chairman of the Board.

Vice-Chairmen of the Board.—The following Vice-Chairmen were unanimously re-elected—viz., Mr. Wm. Cash, Mr. F. H. Jones, Alderman J. H. Lloyd, and Major G. H. Kitson.

Representatives of the Institution of Gas Engineers appointed to serve on the Board.—It was reported that the following representatives had been appointed—viz., Mr. J. H. Canning, Mr. R. E. Gibson, Mr. J. Terrace, and Mr. C. Valon Bennett.

These appointments involve the retirement from the Board of Mr. H. E. Copp, and it was decided that a letter of thanks and appreciation should be sent to Mr. Copp for his services.

Parliamentary.

(*a*) *Gas Undertakings Act.*—It was reported that this Act received the Royal Assent on June 28, and would come into operation on Oct. 1 of this year. An epitome of the Act will be published in the next Monthly Report of the Council.

During the passage of the measure through Parliament, amendments had been inserted which it was felt would be of considerable assistance to the Gas Industry.

Notices prescribed under Section 6 of the Act in regard to Charges for Gas.—It was decided that gas undertakings should be asked to communicate with the officers before adopting the procedure laid down in this section, in order that uniformity with regard to such notices might be secured.

(*b*) *Coal Mines Bill,* 1934.—It was reported that this Bill had been withdrawn, and that certain proposals which had been put forward by the coalowners had been embodied in Orders amending the Central and District Coal Mines Schemes.

The Order for the amendment of the Central Scheme was primarily for the purpose of preventing price-cutting between the various districts. The remainder of the Central Scheme and the District Schemes gave effect to the agreement whereby separate tonnages and quotas are to be fixed in respect of export coal and inland coal.

(*c*) *Middlesex County Council Bill,* 1934.—It was reported that objections had been deposited against this Bill on behalf of the Gas and Water Undertakings of the country, and that the promoters had accepted the amendments submitted on behalf of these interests.

(*d*) *Electricity (Supply) Bill,* 1934 (*Private Member's Bill*).—It was reported that owing to the representations made by the Conjoint Conference of Public Utility Associations certain objectionable features had been omitted from the Bill. It was understood, however, that the promoters would not now proceed with the Bill.

(*e*) *Electricity (Supply) Bill,* 1934 (*Government Measure*).—A report was submitted with regard to this Bill which was introduced in the House of Lords and will come before the House of Commons for second reading at an early date.

(*f*) *Petroleum (Production) Bill,* 1934.—A report was submitted with regard to Clause 4 of this Bill which enabled a licensee to supply (with certain safeguards) natural gas to any premises.

(*g*) *Road Traffic Bill,* 1934.—A report was submitted with regard to the provisions of this Bill and the imposition of a speed limit on all roads in "built-up areas." A meeting had been called by the Illuminating Engineering Society, upon which the National Associations are represented, to consider the provisions of the Bill, and a deputation had subsequently waited upon Sir Cyril Hurcomb, of the Ministry of Transport, in order to ensure that the Bill would not jeopardize good public lighting.

It was further reported that the Minister of Transport had set up a Committee to consider the whole subject of public lighting.

Rating.

(*a*) A meeting of the Rating Conference of the Council, which was held on May 9, was reported. The Conference had before it the consideration of a system of assessment and subsequent appeals. The matter will be further considered by the Conjoint Conference of Public Utility Associations.

(*b*) *Scottish National Development Council and Rating and Taxation in Scotland.*—A report from the Scottish National Development Council on this matter was reported, from which it appeared that the existing system of rating in Scotland had been considered from two main points of view:

(i.) The difference between the English and Scottish rating systems; and

(ii.) Whether the present system of rating should be superseded by a graduated income-tax.

The majority report, while favouring the retention of the Profits' Principle, suggests considerable modifications in the method to be adopted for arriving at the rateable value. Suggestions have also been put forward for modifying the existing procedure. This question was discussed by the Scottish District Executive Board on Friday, July 13.

A Memorandum on the proposals which have been made for legislation relating to the valuation of Local Authority Undertakings has also been issued by the Scottish Office to the Convention of Royal Burghs and Town and County Clerks. This Memorandum was also considered by the Scottish District Executive Board on July 13.

Mains and Cables in Highways.

A draft Clause, together with a Memorandum, was considered by the Board, and it was decided that the Committee should be authorized to continue their negotiations with the Highway Authorities for the purpose of submitting a final form of the Clause.

Meeting of Conjoint Conference of Public Utility Associations.

It was reported that an application for membership from the Conference of Joint Electricity Authorities, Joint Advisory Boards, and Joint Committees had been accepted by the Conjoint Conference.

Road and Rail Traffic Act, 1933—Keeping of Records.

It was reported that the Conjoint Conference felt that vehicles belonging to Public Utility Undertakings should be exempted from the provisions of the Act regarding the keeping of records, and representations in writing had been made to the Minister to this effect.

Waterworks Regulations.

A representative of the Council was appointed in connection with the revision of existing waterworks regulations and by-laws, which is being undertaken by the Joint Standing Committee of the British Waterworks Association.

Compressed Gas for Motor Transport.

It was reported that a demonstration of vehicles propelled by home-produced fuel had been staged by the Coal Utilization Council in Old Palace Yard, Westminster, S.W., on June 6 and 7. Vehicles were exhibited which were propelled by producer gas, creosote, petrol (produced by low-temperature carbonization and from hydrogenated tar), electricity, and compressed gas.

Mr. Ernest Brown, Secretary for Mines, who visited the demonstration and made a speech urging the extended use of home-produced fuels, paid special tribute to the enterprise which had been shown in connection with the development of compressed gas.

Gas at the Royal Show

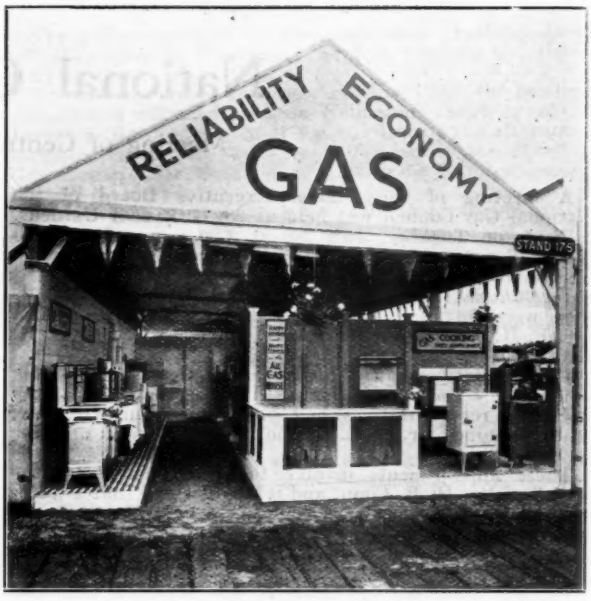
HOW IPSWICH KEPT THE FLAG FLYING

A splendid exhibit on behalf of the Gas Industry was put up by the Ipswich Gas Light Company at the Royal Show, held at Ipswich from July 3 to 7.

Our photographs give an impression of the stand, which consisted of a covered space 50 ft. long by 22 ft. deep, with an open grass area in front 50 ft. by 28 ft. The covered section was fitted with three platforms about 13 ft. square, with two 5-ft. gangways between. A long platform 3 ft. 6 in. deep ran along nearly the whole of the back and was walled up behind. One large end platform was devoted to cooking, refrigeration, and laundry, a partition dividing the cooking and laundry sections. The Company's cookery lecturess gave demonstrations at intervals, and washing demonstrations were given in the laundry section.

The centre platform was given over to a display of domestic heating, in which a rectangular stand was fitted with a selection of the latest panel gas fires, while fireplaces were fitted with modern fires in colours to match. The whole was set off by two floor lighting standards, a floor model clinical lamp, and one or two modern radiators. Two coke grates placed on the corners were much admired, especially by country visitors.

On the remaining platform were industrial and commercial appliances. There was, for example, café set and boiler, from which excellent coffee was enjoyed by many visitors, while there was also shown one of the latest fish fryers, together with a selection of smaller industrial apparatus, including blow-pipe, tailor's iron, brazing hearth, crucible, &c. In addition, there was shown in operation a small gas furnace which, fitted with a pyrometer measuring up to 1,000° C., attracted considerable interest. A larger gas furnace, metal melting pot, three-tier bakers' oven, and a boiler for raising steam for the oven were also displayed, together with a fish frying burner on stand, soldering iron stove, dough-nut fryer, vegetable steamer, and gas-fired and coke-fired boilers.



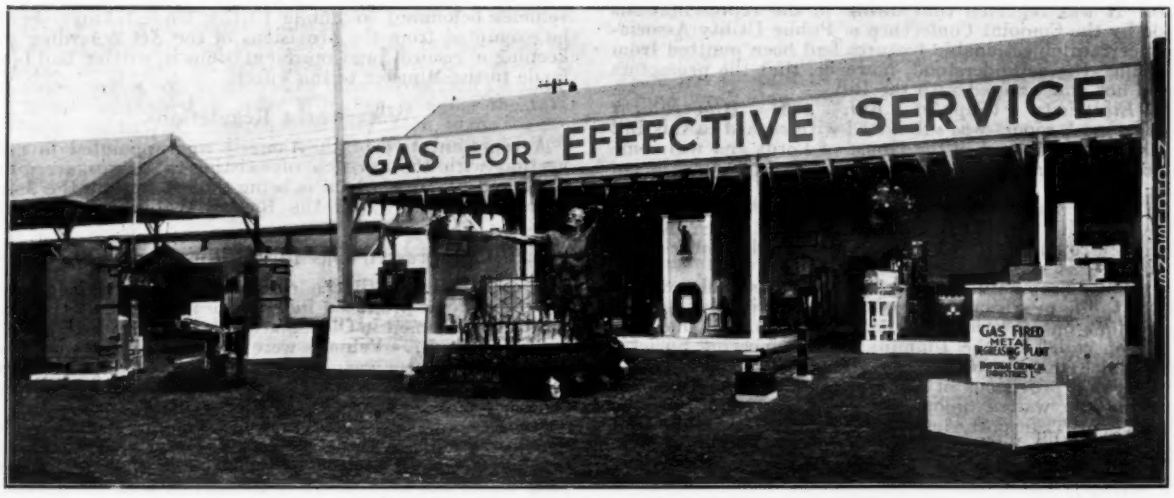
Part of the Cooking Section.

The long platform at the back of the stand was devoted chiefly to a hot water display, in which, among many other exhibits, a new production consisting of a white basin with a white cabinet underneath containing a water heater supplying the basin hot water tap proved a popular exhibit. A storage boiler cut open to display the inside was another piece which attracted special attention.

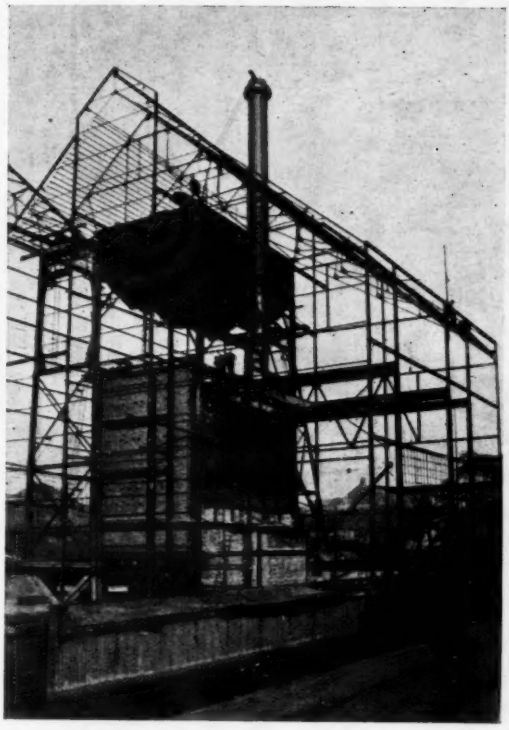
The open space in front of the covered stand was occupied by a selection of large industrial appliances. The Gas Light and Coke Company lent two bottle sterilizing cabinets, one fed from a gas-fired steam boiler and one self-contained, while there was also a small demonstration model degreasing tank at work. A gas-fired greenhouse boiler was in evidence, and a great attraction was an oxy-coal gas cutting demonstration.

Among the firms whose appliances were on show were:

Brayshaw Furnaces, Ltd.
British Furnaces, Ltd.
Burton, Son, and Sanders.
W. H. Dean & Sons.
Ellerstyle Engineering Company.
Sidney Flavel & Co., Ltd.
Messrs. Ford.
Hancock & Co.
Imperial Chemical Industries, Ltd.
G. Kent, Ltd.
R. & A. Main, Ltd.
National Radiator Company, Ltd.
Progas Company, Ltd.
Radiation, Ltd.
Vulcan Stove Company, Ltd.



GENERAL VIEW OF GAS EXHIBIT AT THE ROYAL SHOW IPSWICH.



View along the producer side of plant, showing progress up to Feb. 6, 1934.

Inauguration of Worcester's New Verticals

Glover-West Installation at the Lowesmoor Works

On Tuesday, July 10, a new Glover-West vertical retort installation was inaugurated at the Lowesmoor Works of the Worcester New Gas Light Company, marking another milestone in the history of the City which has in recent years become a considerable industrial centre.

The area of the City has during the past two centuries grown from 450 to 5,394 acres, and its population from 13,000 to over 52,000, which, incidentally, coincides with that of the area actually served by the Gas Company. In addition to the old staple industries of porcelain, gloves, the famous Worcester sauce, vinegar, and tinplate, in the last 50 to 60 years boots and shoes, engineering, and leather manufacturing have been added.

Early Days.

The Worcester New Gas Light Company was formed under a private Act of Parliament in 1846 with a capital of £15,000 and borrowing powers not exceeding £5,000. Powers were obtained in 1848 to raise by new shares not more than £10,000, and the money allowed by this private Act, and by the Company's Clauses Act, was about 50 years ago converted into share capital which now stands at £35,000 with a reserve fund not exceeding £5,000 to cover any deficiency in the profits required for dividend or to meet any extraordinary contingency.

The Company purchased the business of the Worcester Gas Light and Coke Company which had a small works at Lowesmoor, Worcester, and the area served by the Company was from time to time extended so that at the present time it holds an area to the full extent allowed by the Act.

Mr. J. Deakes, who, as Manager, had brought the Company through their troublous times, died in 1891, when Mr. E. L. Adlington, who had been Assistant in the works and offices, was appointed Manager. He resigned through ill-health in 1932, when Mr. G. P. Mitchell, M.Inst.C.E., M.I.Mech.E., was appointed Engineer and General Manager to the Company.

One of the first duties of the new Engineer and General Manager was the consideration of the provision of renewals of the carbonizing plant. It was decided to adopt the Glover-West system of carbonization in continuous vertical retorts and to design an installation which would take the maximum advantage of the configuration of the site, and which would make provision for incorporation at a later date of features which will still further increase the economies to be effected by the complete installation.

The Company's works is conveniently situated on the south-western border of the City. It is bounded on the south by the Tolladine Road and on the west by the Worcester and Birmingham Canal. Solid materials are transported to and from the works by road, rail, and water, but the supply of coal has been greatly facilitated by the construction of a new private railway siding, while the local distribution of coke to the district is improved by the provision of three modern motor lorries.

The New Plant.

The new installation consists of twelve retorts of the 50 in. " steaming model " arranged in heating units of two retorts each. The plant is situated at the south-east corner of the works adjacent to the railway and the Tolladine Road, with provision for extension towards the existing coke plant. Advantage was thus taken of the difference of some 10 ft. between the level of the coke yard and the ground towards the main railway line. The new railway siding extends from the main line, across the high level ground and along the coke yard approximately parallel to the Tolladine Road boundary wall. The coal wagons enter the new vertical retort house, after passing over a weighing machine, through an opening in the permanent gable end of the building, the rail track being extended to a point 175 ft. beyond the extension gable end of the building. The difference in level above referred to renders possible the installation at a future date of a mechanical wagon tipper, but for the present coal is discharged from the wagons through bottom-opening doors to a hopper mouthpiece, leaving room for the ultimate construction of a hopper capable of containing a whole wagon load when the scheme is completed.

From the hopper mouthpiece coal is fed to a band conveyor, which has been transferred from an existing section of the works plant, and thence to the bottom strand of a West lip-bucket conveyor which encircles the retort bench. Provision is made for the ultimate incorporation in the scheme of an existing coal breaker, feeder gear, and elevator, which will deliver coal to the top strand of the lip-bucket conveyor, thus enabling coal and coke to be handled simultaneously in the standard manner. The lip-bucket conveyor elevates the coal and distributes it in steel storage bunkers arranged above the retorts and capable of containing 48 hours' supply. From these bunkers coal is admitted to the intermediate feed hoppers of the individual retorts by way of a standard gas-tight coal valve.

The retorts themselves are of the standard elliptical section expanding from 50 in. by 10 in. at the top to 56 in. by 16 in. in a length of about 21 ft., at which point the section is more rapidly expanded into the steaming base which is a feature of this system. The length of the complete retort is 25 ft. The retorts are built into the standard Glover-West setting, with horizontal combustion chambers, to each of which the supply of fuel gas is separately adjusted, permitting the disposition of temperatures throughout the vertical length of the retort to correspond to the requirements of the coal under treatment and the quality of gas to be produced. Each heating unit is finally controlled by dampers leading to the chimney flue, which is itself constructed for the incorporation, at an early date, of waste-heat recovery plant.

Fuel gas for the retort setting is generated from a portion of the residual coke in two producers of the step-grate type, operated open to the atmosphere, the ingress of primary air being governed by the requirements of the setting.

Steam for the retorts, coke extractor engine, and service

Photo.: Aerofilms, Ltd.

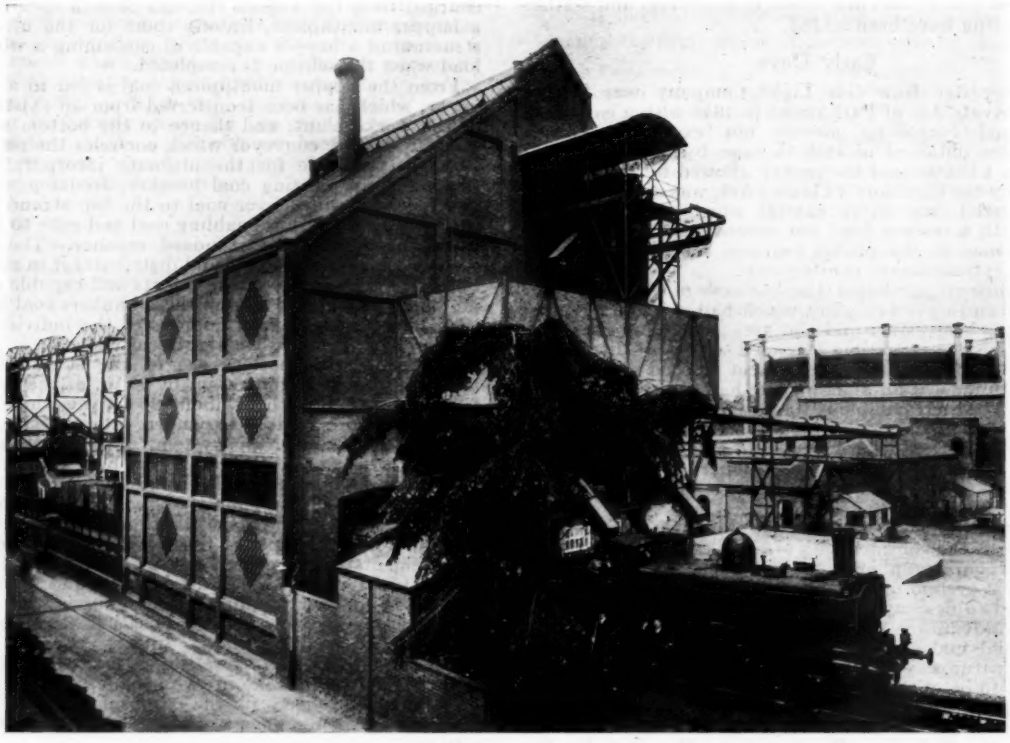
THE WORCESTER COMPANY'S LOWESMOOR WORKS VIEWED FROM THE AIR, WITH THE NEW INSTALLATION OF VERTICAL RETORTS ON THE LEFT.

pumps, pending the installation of the waste-heat boiler, is supplied from the existing works boiler through a well-insulated main some 240 ft. long, while the gas and tar from the retort house follow the same path, in the reverse direction, to the condensers and tar well respectively.

Provision is made for the eventual installation of a lift. In the meantime, the installation has been generously provided with platforms and staircases, so that every portion of the plant and machinery can be conveniently reached by the operators and inspected by the management.

Coke Handling.

Coke is periodically discharged from the cast-iron chambers below the coke extractors to the bottom strand of the lip-bucket conveyor by way of a carefully designed chute,



THE NEW GLOVER-WEST RETORT HOUSE AND COKE STORAGE HOPPERS.

which eliminates breakage and spillage. The conveyor elevates the coke and runs out in a loop over storage hoppers of 100 tons capacity. Space has been provided between the loop and the top of the hoppers for the future installation of coke-grading plant. Provision is made for the discharge of coke from the hoppers direct to railway wagons on the new siding, or to road vehicles on the high-level ground, each discharge shoot being fitted with a bar screen and hopper for the removal of breeze.

Alternatively, coke can be discharged to the high-level ground at a point where it can be fed into a telpher grab and transported to the coke yard over the existing telpher track, which has been extended through the new retort house. The by-pass chute has been so constructed that an automatic skip filler can be installed when it is deemed to be necessary. Coke for producers and retorts is discharged into skips running on overhead monorails at the two levels.

The West lip-bucket conveyor is of the latest pattern with machined pins and bushes designed for forced automatic lubrication. This improvement, which ensures that every joint of the chain is regularly lubricated under pressure in such a manner that no grit or dirt is ever washed into the articulation, provides a complete solution of the problem of handling so abrasive a material as coke in a conveyor of the gravity bucket type with a very low cost of maintenance. The combined conveying and elevating of the coke in the one machine eliminates the breakage which is inevitably associated with transference from a conveyor to a separate elevator, and, at the same time, enables the two operations to be effected in the minimum of length. When the installation is completed, the simultaneous handling of coal and coke without interference with either operation by the other will complete the realization of the advantages of this type of conveyor.

It may be mentioned that the main offices and showrooms of the Company, which comprise the headquarters of the Undertaking, are also in process of being re-modelled to bring them into line with modern ideas and requirements.

OPENING CEREMONY.

The inauguration of the new plant was performed by the Chairman of the Company, Mr. J. Stallard, the ceremony being followed by luncheon at the Guildhall, which was attended by the Mayor, prominent local residents, and members of gas undertakings from many parts of the country.

Mr. F. J. West, representing the Contractors, proposed the toast of "The Trade and Commerce of Worcester," which was responded to by the Mayor and Mr. W. M. Ratcliffe.

Mr. R. Robertson (Engineer of the Bristol Gas Company) proposed "The Worcester New Gas Light Company," congratulating Mr. G. P. Mitchell on his splendid work and the Company not only on their past prosperity, but on the present sound financial position, and their prospects for the future, particularly on the lines they were taking to ensure success.

Mr. Stallard, who responded, also paid tribute to Mr. Mitchell, and remarked that the new plant brought them into line with the most up-to-date gas-works.

Mr. R. E. Gibson, of Liverpool, spoke in response to the toast of "The Guests," and commented on the fine new installation, while Mr. G. P. Mitchell, in bringing the proceedings to a close, observed that the Worcester Company had a great future, and he thanked his staff for the great assistance they had given him.

International Gas Union

2nd International Gas Conference, Zurich, 1st to 4th September, 1934

OFFICIAL PROGRAMME

Saturday, 1st September, 1934.

10.00 to 12.00.
61st Annual General Meeting of the Swiss Society of Gas and Water Engineers in Lecture Theatre No. 3 of the Swiss Federal Polytechnic, Zurich, to which all delegates attending the 2nd International Gas Conference are invited.
(1) Opening business.
(2) Paper by Professor Dr. P. Schlaepfer (Zurich).

14.30 to 18.00.
Visit to Zurich Gas Works, Schlieren, by Special Train leaving Zurich Station at 14.30 and arriving back at 18.00.
Ladies' Visit to Schaffhausen and Neuhausen and Tea at the Rhine Falls.

20.30.
Informal Reception at the Kursaal, Alpenquai, Zurich. (Morning Dress.)

Sunday, 2nd September, 1934.

10.00 to 12.00.
Opening of the 2nd International Gas Conference in the Auditorium Maximum of the Swiss Federal Polytechnic, Zurich.
(1) Presidential Address by Herr Fritz Escher, President, International Gas Union (Director, Zurich Gas Works).
(2) Addresses of Welcome by representatives of the Swiss Government.
(3) Address by the President-Elect.
(4) Address by the President of the Swiss Society of Gas and Water Engineers.
(5) Paper on "Developments from Co-ordinated Research and Co-ordinated Rate Making" by Mr. Clifford E. Paige (Brooklyn, U.S.A.).

19.30.
Official Dinner and Dance in the Dolder Grand Hotel, Zurich. (Dinner Jackets.)

Monday, 3rd September, 1934.

09.00 to 10.00.
Resumption of Conference in Lecture Theatre No. 3 of the Swiss Federal Polytechnic.
Report of the German Association of Gas and Water Engineers on "Co-ordination of the Methods of Testing and Guaranteeing Gasmaking Plants," presented by Dr. Fr. Plenz (Leipzig).
Discussion.

10.00 to 10.45.
Paper on "Coal Evaluation" by Professor G. A. Brender à Brandis (The Hague).

10.45 to 11.00.
Interval.

11.00 to 12.00.
Report of the French Gas Union on "Co-ordination of Method of Testing Gas Appliances," presented by M. G. Reclus (Paris).
Discussion.

14.30 to 17.30.
Tour of Lake of Zurich, by steamer leaving and returning to Bürkliplatz.

20.15.
Festival Performance of "Hochzeit des Figaro" (Mozart) at the Zurich Stadttheater. (Dinner Jackets.)

Tuesday, 4th September, 1934.

09.00 to 10.00.
Resumption of Conference in Lecture Theatre No. 3 of the Swiss Federal Polytechnic.
Report of The Institution of Gas Engineers (Great Britain) on "Methods for the Development of the Use of Gas for Domestic Purposes."
Discussion.

10.00 to 10.30.
Paper on "Distribution of Natural Gas" by M. K. Zardecki (Poland).

10.30 to 10.45.
Interval.

10.45 to 11.45.
Report of the Belgian Gas Association on "Methods for the Development of the Industrial Use of Gas, including the Hotel Industry," presented by M. M. Brabant (Brussels).
Discussion.

11.45 to 12.15.
Paper on "Carbonizing by Electricity" by Dr. Michelangelo Böhm (Milan).

14.30 to 15.30.
Report of the Czecho-Slovakian Gas Association on "Systems of Gas Charges," presented by Professor Dr. Th. Keclik (Prague).
Discussion.

15.30 to 16.30.
Report of the Swiss Society of Gas and Water Engineers on "Systems of Carcassing Buildings" presented by M. W. Grimm (St. Gall).
Discussion.

16.30 to 17.00.
General business.
Termination of Conference.

16.00.
Frau Escher's "At Home" to Ladies at the Hotel Baur au Lac, Zurich.

20.30.
Informal Farewell gathering at the Hotel Baur au Lac. (Morning Dress.)

Wednesday, 5th September, 1934.

07.30 Visit to Lugano by Special Train departing from Zurich Station, via St. Gotthard.
11.00 Arrive Lugano.
12.00 Official Luncheon at Restaurant Biaggi.
Optional Visits to Monte Brè or San Salvatore.
18.00 Depart Lugano Station.
Dinner on Train.
22.00 Arrive Zurich.

BRITISH TRAVEL ARRANGEMENTS.

Official Itineraries.

British Delegates to the 2nd International Gas Conference may travel to and from Switzerland by one of the twelve undermentioned Official Itineraries, which comprise all Travel and Hotel arrangements throughout. Such Itineraries have been arranged by the Institution of Gas Engineers through the Official Travel Agents, Thomas Cook & Son, Ltd., Berkeley Street, London, W. 1 (GROsvenor 4000; Extension 66; Mr. R. H. F. Beard), and Provincial Offices.

Itinerary A is comprehensively devised for those desiring to participate in the Conference in Zurich, the Lugano Visit, and the subsequent Swiss Tour to Lucerne, Interlaken, Jungfraujoch, Berne, and Basle.

Itinerary B corresponds to Itinerary A but eliminates the Swiss Tour.

Itinerary C corresponds to Itinerary A but omits the Lugano Visit and the Swiss Tour.

On each of the three Itineraries one of the four following outward and homeward routes may be followed:—

Route 1 (London-Laon-Zurich) involves outward and homeward train journeys overnight between the French Coast and Switzerland.

Route 2 (London-Harwich-Hook of Holland-Zurich) provides for overnight travel by Ship.

Route 3 (London-Paris-Zurich) eliminates overnight travel by breaking the outward and homeward journeys and staying overnight in Paris.

Route 4 (London-Zurich) provides for travel by Imperial Airways to and from Switzerland and affords the most convenient and comfortable and the quickest route, the journey between the Croydon and Zurich Airports taking 6½ hours.

Delegates are recommended to select the A Itinerary, and, since it is anticipated the majority will prefer Route 1, a representative of the Official Travel Agents will accompany the A 1 Party throughout, but will be available for all members attending the Conference at the Hotel Baur au Lac, Zurich, and elsewhere as indicated in Itinerary A 1.

Independent Itineraries.

Delegates whose requirements are not met by one of the Official Itineraries should register as mentioned hereunder and then make independent travel arrangements with the Official Travel Agents

Official Fares.

The Official Itinerary Fares, assuming that the numbers participating permit of advantage being taken of reduced Railway Fares in France and Switzerland, are as follows:—

Itinerary A 1 (10 days)	£28	1s.	each
,, A 2 (11 ,,)	£27	18s.	,,
,, A 3 (11 ,,)	£30	16s.	,,
,, A 4 (9 ,,)	£25	16s.	,,
,, B 1 (7 ,,)	£20	6s.	,,
,, B 2 (9 ,,)	£21	2s.	,,
,, B 3 (9 ,,)	£23	4s.	,,
,, B 4 (7 ,,)	£18	13s.	,,
,, C 1 (6 ,,)	£19	1s.	,,
,, C 2 (8 ,,)	£19	17s.	,,
,, C 3 (8 ,,)	£21	18s.	,,
,, C 4 (6 ,,)	£17	8s.	,,

The Official Fares comprise:—

(*a*) Travel Tickets (First Class on Ships, Second Class and Reserved Seats on Railways, except Third Class between Interlaken and Jungfraujoch), including Sleeping Car Berths on Route 1, Ship Berths on Route 2, and Paris Hotel accommodation on Route 3.
(*b*) Transfer of passengers and baggage between Stations and Hotels.
(*c*) Bedroom (single-bedded), plain Breakfast and (except at the Hotel Baur au Lac, Zurich) Luncheon and Dinner—en route and throughout.
(*d*) Gratuities in respect of the Hotel accommodation and Meals provided, except for Sleeping Car attendants.
(*e*) Services as abovementioned of the representative of the Official Travel Agents and of their Offices and Uniformed Interpreters en route.

Allowances and Supplements.

An allowance of £5 9s. 10d. will be given if return Sleeping Car berths on Route 1 are not required. Private Bathrooms at the Hotels and/or private Cabins on Route 2 may be obtained on payment of Supplements.

The following may be obtained from the Official Travel Agents:—

(*a*) Summer Return Tickets between Provincial Stations and London.
(*b*) Baggage, Life and Accident Insurance.
(*c*) Travellers' Cheques and Foreign Money. Members are advised not to carry much English or Foreign money, but to be in possession of Travellers' Cheques which enable cash to be obtained readily in any currency.

Conference Fees.

To the Official Itinerary Fares must be added and paid through the Official Travel Agents,

(*a*) the Conference Fee of 35 Swiss Francs (£2 6s. 8d.) for each delegate or 20 Swiss Francs (£1 6s. 8d.) for each member of a delegate's family, and
(*b*) 21 Swiss Francs (£1 8s.) if the Lugano Visit is taken.

The Foreign Exchange Rate at present approaches 15.50 Swiss Francs to the £.

The Conference Fee covers the cost of participation in the various meetings and functions (including the Visit to the Zurich Gas Works, Ladies' Visit to the Rhine Falls, Trip on the Lake of Zurich, Official Dinner and Dance, Visit to the Opera), and, in respect of the fee of 35 Swiss Francs, an advance copy of each of the Reports, and, after the Conference, a Report of the Proceedings and Discussions at the Conference.

Copies of the Reports and a Report of the Proceedings and Discussions can be obtained by those not taking part in the Conference, price 18 Swiss Francs (£1 4s.), from the Secretary of The Institution of Gas Engineers.

Passports.

Passports—new, renewed or endorsed for France and Switzerland, and, if convenient, for Holland, Belgium, Germany, and Italy—may be obtained personally or by post, from the Passport Offices in London and Liverpool or through the Official Travel Agents. Visas will not be required.

Official Hotels.

The Official Hotels are as follows:—

London: Goring Hotel, Ebury Street, Victoria, S.W. 1.
Paris: Hotel Ambassador.
Zurich: Hotel Baur au Lac.
Lugano: Hotel Splendide.
Lucerne: Hotel Gotthard Terminus.
Interlaken: Hotel du Lac.
Jungfraujoch: Berghaus Hotel.
Berne: Hotel Bristol.
Basle: Hotel Euler.

Other recommended Hotels in Zurich are the Hotel Dolder Grand (overlooking and outside the Town) and the Hotel Schweizerhof (opposite the Railway Station), but Delegates are advised to register in time to secure accommodation at the Hotel Baur au Lac.

Headquarters.

The Headquarters in Zurich of the British Delegation to the Conference will be at the Hotel Baur au Lac, where Delegates adopting one of the Official Itineraries will be resident. Telephone No.: Zurich Salnau 16·50. Telegraphic Address: Alexander, Baurlac, Zurich.

The Headquarters and Information Bureau of the International Gas Union during the Conference will be at the Swiss Federal Polytechnic (Room No. 10c), where Delegates should register on arrival and collect Conference Tickets and documents.

Clothing.

Normal English Summer attire, warm lightweight overcoats for evening wear and Dinner Jackets should be taken. Personal effects, papers and overnight attire are best conveyed in a suit case, which can conveniently be carried and all other clothing in a small trunk. All luggage should be labelled, the labels being provided by the Official Travel Agents.

Registration.

Delegates should register before 31st July, 1934, by notifying the Secretary (Mr. J. R. W. Alexander) of The Institution of Gas Engineers, 28, Grosvenor Gardens, London, S.W. 1 (Telephone: SLOane 8266; Telegrams: Gasophaner, Sowest—London) of their intention to participate, by whom they will be accompanied and the Official Itinerary, if any, selected. The Secretary will notify the Official Travel Agents (who will then con-

municate with each participant and make the appropriate arrangements) and the International Gas Union.

It is estimated that 500 delegates from the several Member Nations of the Union will be present.

OFFICIAL ITINERARIES.

ITINERARY A 1.

Friday, 31st August, to Sunday, 9th September, 1934.

Friday:	16.30	Depart LONDON (Victoria Station)
		via Folkestone (depart 18.25)
		Boulogne (depart 20.30)
		Laon
Saturday:		Basle (depart 07.17)
		Dinner and Breakfast en route
	09.08	Arrive ZURICH Station
		Hotel Baur au Lac
Saturday to Tuesday:		In Zurich for the 2nd International Gas Conference—see Official Programme
Wednesday:	07.30	Depart Zurich by Special Train
		via St. Gotthard
	11.00	Arrive LUGANO
	12.00	Official Luncheon at Restaurant Biaggi
		Optional Visits to Monte Brè or San Salvatore
	18.00	Depart Lugano Station
		Dinner on Train
	22.00	Arrive Zurich
Thursday:	09.29	Depart Zurich Station
	10.28	Arrive LUCERNE
		Luncheon at Hotel Gotthard Terminus
	14.04	Depart Lucerne Station
	17.16	Arrive INTERLAKEN (Ost)
		Hotel du Lac
Friday:	08.30	Depart Interlaken (Ost) Station
		via Wengen
		Kleine Scheidegg
	12.05	Arrive JUNGFRAUJOCH
		Luncheon at Berghaus Hotel
	15.25	Depart Jungfraujoch Station
		via Kleine Scheidegg
		Grindelwald
		Interlaken
	20.18	Arrive BERNE
		Hotel Bristol
Saturday:	17.07	Depart Berne Station
	18.55	Arrive BASLE
		Dinner at Basle Station Buffet
Sunday:	00.30	Depart Basle Station
		via Laon
		Calais (depart 12.05)
		Dover (depart 13.45)
		Breakfast and Luncheon en route
	15.20	Arrive London (Victoria Station)

ITINERARY A 2.

Thursday, 30th August, to Sunday, 9th September, 1934.

Thursday:	20.30	Depart LONDON (Liverpool Street Station)
		via Harwich (depart 22.00)
Friday:		Hook of Holland (depart 06.59 by Rheingold Express)
		Cologne
		Basle
		Dinner, Breakfast, Luncheon and Dinner en route
	20.03	Arrive ZURICH Station
		Hotel Baur au Lac
Saturday to Tuesday:		In Zurich for the 2nd International Gas Conference—see Official Programme
Wednesday:	07.30	Depart Zurich by Special Train
		via St. Gotthard
	11.00	Arrive LUGANO
	12.00	Official Luncheon at Restaurant Biaggi
		Optional Visits to Monte Brè or San Salvatore
	18.00	Depart Lugano Station
		Dinner on Train
	22.00	Arrive Zurich
Thursday:	09.29	Depart Zurich Station
	10.28	Arrive LUCERNE
		Luncheon at Hotel Gotthard Terminus
	14.04	Depart Lucerne Station
	17.16	Arrive INTERLAKEN (Ost)
		Hotel du Lac
Friday:	08.30	Depart Interlaken (Ost) Station
		via Wengen
		Kleine Scheidegg
	12.05	Arrive JUNGFRAUJOCH
		Luncheon at Berghaus Hotel
	15.25	Depart Jungfraujoch Station
		via Kleine Scheidegg
		Grindelwald
		Interlaken
		Berne
		Dinner on Train
	22.24	Arrive BASLE
		Hotel Euler
Saturday:	09.18	Depart Basle by Rheingold Express
		via Cologne
		Hook of Holland (depart 23.45)
Sunday:		Harwich (arrive 06.15)
		Luncheon, Dinner and Breakfast en route
	08.38	Arrive London (Liverpool Street Station)

ITINERARY A 3.

Thursday, 30th August, to Sunday, 9th September, 1934.

Thursday:	14.00	Depart LONDON (Victoria Station)
		via Dover (depart 15.55)
		Calais (depart 17.35)
		Dinner on Train
	20.46	Arrive PARIS (Nord) Station
		Hotel Ambassador
Friday:	14.00	Depart Paris (Est) Station
		via Basle
		Dinner on Train
	23.00	Arrive ZURICH Station
		Hotel Baur au Lac
Saturday to Friday:		As for Itinerary A 1.
Saturday:	13.35	Depart Berne Station
		via Delle
		Dinner on Train
	21.59	Arrive Paris (Est) Station
		Hotel Ambassador
Sunday:	08.20	Depart Paris (Nord) Station
		via Calais (depart 12.05)
		Dover (depart 13.45)
		Breakfast and Luncheon en route
	15.20	Arrive London (Victoria Station)

ITINERARY A 4.

Friday, 31st August, to Saturday, 8th September, 1934.

Friday:	07.15	Depart LONDON (Airway Terminus, Victoria Station)
		via Croydon Airport (depart 08.00)
		Paris (depart 10.45)
		Basle (depart 13.45)
		Luncheon en route
	14.20	Arrive ZURICH (Airport)
	15.05	Arrive Zurich (Airway Terminus, Hotel Schweizerhof)
		Hotel Baur au Lac
Saturday to Friday		As for Itinerary A 2.
Saturday:	15.45	Depart Basle (Airport)
		via Paris Airport (depart 19.15)
		Dinner en route
	21.30	Arrive Croydon (Airport)
	22.15	Arrive London (Airway Terminus, Victoria Station)

ITINERARY B 1.

Friday, 31st August, to Thursday, 6th September, 1934.

As for Itinerary A 1 until returning to Zurich Station at 22.00 on Wednesday, 5th September, and thence:

Wednesday:	22.36	Depart Zurich Station
Thursday:		via Basle (depart 00.30)
		Laon
		Calais (depart 12.05)
		Dover (depart 13.45)
		Breakfast and Luncheon en route
	15.20	Arrive London (Victoria Station)

ITINERARY B 2.

Thursday, 30th August, to Friday, 7th September, 1934.

As for Itinerary A 2 until returning to Zurich Station at 22.00 on Wednesday, 5th September, and thence:

Thursday:	07.22	Depart Zurich by Rheingold Express
		via Basle (depart 09.18)
		Cologne
		Hook of Holland (depart 23.45)
Friday:		Harwich (arrive 06.15)
		Breakfast, Luncheon, Dinner and Breakfast en route
	08.38	Arrive London (Liverpool Street Station)

ITINERARY B 3.

Thursday, 30th August, to Friday, 7th September, 1934.

As for Itinerary A 3 until returning to Zurich Station at 22.00 on Wednesday, 5th September, and thence:

Thursday:	13.06	Depart Zurich Station
		via Basle
		Dinner en route
	21.59	Arrive Paris (Est) Station
		Hotel Ambassador
Friday:	08.20	Depart Paris (Nord) Station
		via Calais (depart 12.05)
		Dover (depart 13.45)
		Breakfast and Luncheon en route
	15.20	Arrive London (Victoria Station)

MAIN

The highest grade of Gas Cooker procurable

Fully Enamelled, inside and outside; Grid type or stamped Enamelled type Plate Racks with Backplate; Chromium Taps with Bakelite Handles, Enamelled Grill Pan and Drip Pan.

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ITINERARY B 4.

Friday, 31st August, to Thursday, 6th September, 1934.

As for Itinerary A 4 until returning to Zurich Station at 22.00 on Wednesday, 5th September, and thence:

Thursday: 14.05 Depart Zurich (Airway Terminus)
14.50 Depart Zurich (Airport)
via Basle (depart 15.45)
Paris (depart 19.15)
Dinner en route
21.30 Arrive Croydon (Airport)
22.15 Arrive London (Airway Terminus, Victoria Station)

ITINERARY C 1.

Friday, 31st August, to Wednesday, 5th September, 1934.

As for Itinerary A 1 until completion of Conference Programme in Zurich on Tuesday, 4th September, and thence:

Tuesday: 22.36 Depart Zurich Station
Wednesday: via Basle (depart 00.30)
Laon
Calais (depart 12.05)
Dover (depart 13.45)
Breakfast and Luncheon en route
15.20 Arrive London (Victoria Station)

ITINERARY C 2.

Thursday, 30th August, to Thursday, 6th September, 1934.

As for Itinerary A 2 until completion of Conference Programme in Zurich on Tuesday, 4th September, and thence:

Wednesday: 07.22 Depart Zurich by Rheingold Express
via Basle (depart 09.18)
Cologne
Hook of Holland (depart 23.45)
Thursday: Harwich (arrive 06.15)
Breakfast, Luncheon, Dinner and Breakfast en route
08.38 Arrive London (Liverpool Street Station)

ITINERARY C 3.

Thursday, 30th August, to Thursday, 6th September, 1934.

As for Itinerary A 3 until completion of Conference Programme in Zurich on Tuesday, 4th September, and thence:

Wednesday: 13.06 Depart Zurich Station
via Basle
Dinner en route
21.59 Arrive Paris (Est) Station
Hotel Ambassador
Thursday: 08.20 Depart Paris (Nord) Station
via Calais (depart 12.05)
Dover (depart 13.45)
Breakfast and Luncheon en route
15.20 Arrive London (Victoria Station)

ITINERARY C 4.

Friday, 31st August, to Wednesday, 5th September, 1934.

As for Itinerary A 4 until completion of Conference Programme in Zurich on Tuesday, 4th September, and thence:

Wednesday: 14.05 Depart Zurich (Airway Terminus)
14.50 Depart Zurich (Airport)
via Basle (depart 15.45)
Paris (depart 19.15)
Dinner en route
21.30 Arrive Croydon (Airport)
22.15 Arrive London (Airway Terminus, Victoria Station)

The Sheffield Gas Company's Bill

House of Commons Committee

(*Before Sir* HENRY JACKSON (*Chairman*), *Dr.* JOHN WILLIAMS, *Mr.* GEORGE HARVEY, *and Mr.* PEARSON.)

The main purpose of this Bill is to prohibit the supply of coke oven gas within the Sheffield Gas Company's limits of supply by anyone other than the Company, except with the consent of the Company, such consent not to be unreasonably withheld.

The Committee proceedings in the House of Commons opened on Wednesday, July 11. Much of the opposition which the Company had to meet in the House of Lords a few weeks ago (the proceedings were reported in the "JOURNAL" for May 23 and June 13, pp. 469 and 814), when the principle of the Bill was approved, was maintained in the House of Commons, and was described by Counsel as considerable. Indeed, the United Steel Companies, Ltd., and Messrs. Samuel Fox & Co., Ltd., have even added to their legal representation.

The Gas Company was represented on both occasions by Mr. W. E. Tyldesley Jones, K.C., Mr. F. J. Wrottesley, K.C., and Mr. J. H. Thorpe, O.B.E.

The opponents are the United Steel Companies, Ltd., and Messrs. Samuel Fox & Co., Ltd., represented by the Rt. Hon. Sir William Jowett, K.C., Mr. R. M. Montgomery, K.C., Mr. Sydney Turner, K.C., and Mr. Jacques Abady; the South Yorkshire Gas Grid Company, represented by Mr. Maurice Fitzgerald; the National Association of Coke and By-Product Plant Owners, represented by Mr. Jacques Abady; and the Mining Association of Great Britain, represented by Mr. F. G. Thomas, K.C., and Mr. Jacques Abady.

Although in the House of Lords the Yorkshire Electric Power Company and the West Riding of Yorkshire County Council opposed, they were not represented at the House of Commons proceedings.

In the Bill at the present stage there is provision that any question which arises as to whether or not the Gas Company's consent to a supply in its area by other persons has been unreasonably withheld is to be determined by the Board of Trade; and there are certain exceptions to the prohibition.

The South Yorkshire Grid.

It will be remembered that the problem of providing a gas grid for the collection of surplus coke oven gas from coke oven plants in the South Yorkshire area, and its profitable use, was considered in the reports of the National Fuel and Power Committee, and of the Departmental Committee on Area Gas Supply, which latter Committee reported two or three years ago. The outcome was that in 1931 the Sheffield Gas Company obtained Parliamentary powers to construct and operate such a grid, and an arrangement was come to whereby the Gas Company was to buy the crude coke oven gas from the South Yorkshire Gas Grid Company, which has a small capital and whose constituent members are coke oven owners. The price agreed upon for the purchase of the gas by the Gas Company was 5½d. per 1,000 c.ft., and the grid is being constructed gradually. Some time ago the Gas Company had learned that the United Steel Companies, Ltd., contemplated giving a supply of coke oven gas direct from one of its coke ovens to the Tinsley Wire Works, an associated concern situated within the Gas Company's area of supply.

When the present Bill was before the House of Lords the opening speech of the Gas Company's Counsel, Mr. W. E. Tyldesley Jones, K.C., who naturally had to give a detailed history of this matter, occupied nearly two days; in the House of Commons proceedings he occupied more than two days. It involved the reading of long extracts from the reports of the National Fuel and Power Committee and the Departmental Committee on Area Gas Supply.

Counsel claimed that the Bill was in the interests of the general community, for the Company had received legislative sanction for the gas grid undertaking for the public good, and that undertaking would be in serious peril if the Bill were not passed. He also referred to the Sheffield Gas Company as being one of the most enterprising in the country, selling gas at a general price of 7d. per therm. The grid system, he said, was developing from day to day, and he anticipated that probably the coke oven owners would be unable to meet all the demands of the Gas Company. As an indication of the demands that were arising, he said that recently the Company had been asked to quote for the supply to one consumer of 1,000 million c.ft. per annum, and to another for 1,200 million c.ft. per annum.

Bill Promoted to Prevent Breach.

It has been agreed between the Sheffield Gas Company and the coke oven owners that the grid should be provided by the former Company, and the terms on which it should be provided and used were also subject to agreement. The present Bill was considered necessary in order to prevent a gross breach of the whole basis of that agreement. Parliament had given authority for the Sheffield Gas Company to own the network. Now an attempt was being made by some coke-oven owners to by-pass even the Grid Company they themselves had set up, and to say they would compete with the Gas Company's grid, although the Gas Company had undertaken obligations for their benefit and had made contracts with the Grid Company; these latter were not worth the paper they were written on unless the real people interested—*i.e.*, the constituent members of the Grid Company—honoured them.

A cardinal point was that the success of the grid depended on the Sheffield Company getting all the surplus gas available from the coke ovens. The more they obtained, the cheaper would be the price, which was a matter of importance to the general community.

Dealing more in detail with the contemplated supply to the Tinsley Wire Works, Counsel said that Mr. Benton Jones (Chairman of the United Steel Companies) had told Mr. Ralph Halkett (General Manager and Secretary of the Gas Company) that he had been advised legally that he could not be stopped by the Sheffield Gas Company from supplying the gas without reference

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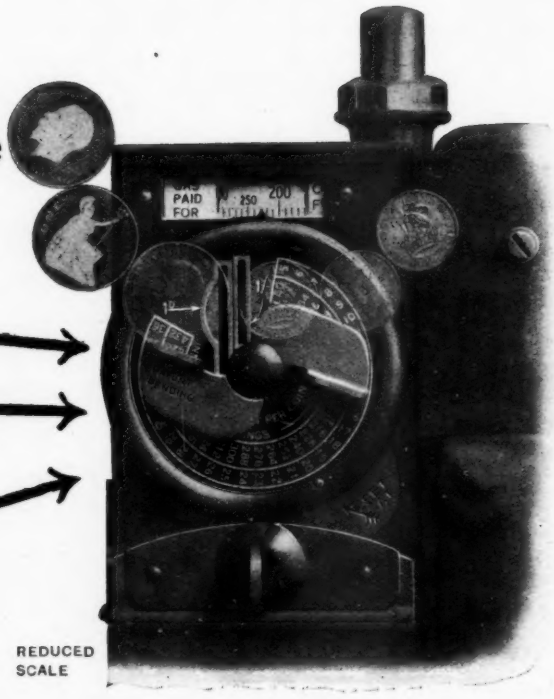

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to the grid; and Mr. Halkett had replied that the Gas Company would leave no stone unturned to stop the supply, in view of the seriousness of the matter to the Gas Company.

For the purpose of the supply, a gas main had been laid from the coke ovens at Orgreaves to the Tinsley Works, passing over private land, and the United Steel Companies were obtaining 8d. for the coke oven gas so supplied, whereas they would have obtained only 5½d. if they had sold it to the Grid Company (from whom the Gas Company bought). It was easy to provide a main to supply a lucrative customer, and the United Steel Companies would be getting the increased price at the expense of other members of the Grid Company, who were supplying their surplus gas to the grid at 5½d.

There was no contract for the Gas Company to take the whole of the surplus gas from the coke ovens, for it was of no use agreeing to buy gas which it could not sell. But the Gas Company was under an obligation to push the sale of coke oven gas and was bound to purchase such gas from the Grid Company. The Gas Company could not create a market if the United Steel Companies were allowed to appropriate potential consumers of the grid. Counsel added that if the Gas Company had had the power to "go for them" through the Law Courts it would have gone like a shot. The United Steel Companies had done no harm by law; it was a question of whether the Gas Company was right in saying that the action of United Steel Companies was an infringement of the whole basis of the grid scheme.

The Gas Company was entitled to come to Parliament because the basis of the agreement was to give effect to the report of the Area Gas Supply Committee, because it was for the benefit of the public. If he could satisfy the Committee that the basis was being cut away from a public undertaking, then Parliament ought to interfere, because it was contrary to the public interest that the public undertaking should be destroyed.

"An Opposition Grid."

It was against the policy of the Area Gas Committee's report, continued Counsel, to set up an opposition grid; if the Grid Company could not do that, he contended that it was not right for a constituent member of that Company to do it. He asked that the Sheffield Gas Company should have complete freedom from competition within its limits for the supply of coke oven gas; he was asking for that freedom from competition even from new coke oven owners.

Neither the Board of Trade nor any other Government Department had reported adversely on the proposals of the Bill.

It was protested by the United Steel Companies that the Gas Company sought to be placed in a unique position, in being able to refuse to permit coke oven owners to supply anybody but themselves, whereas the Gas Company was under no obligation itself to furnish supplies of crude coke oven gas. Counsel replied that within the limits of supply the Gas Compnay had laid between 900 and 1,000 miles of distributing mains. It was obliged to supply purified gas to anyone who demanded it if their premises were within a certain distance of the mains. If there was a demand for a supply of unpurified coke oven gas the Company would have to lay another set of mains to carry it, which might not be of benefit to the consumers.

Sir *Alexander Walker* (who was Chairman of the Area Gas Supply Committee) gave evidence in support of the Bill. He said the Committee had not concerned itself with the question as to who should run the grid, so long as it was a single unit brought into being by loyal co-ordination among coke oven owners. It was essential from the economic point of view that there should be co-operation in order to lower costs.

Much of the cross-examination was directed to detailed figures. Sir Alexander was asked by Mr. F. G. Thomas, K.C. (for the Mining Association of Great Britain), whether he considered that the recommendations of the Area Gas Committee were being accomplished, or that even a very great step towards the accomplishment was being effected, when it was found that only 3 out of 19 of the coke ovens had been connected, that the Committee's strong recommendation that the gas should be purified before it was put into the grid had been disregarded, and that only 4½ miles of main out of 73 had yet been constructed. Sir Alexander's reply was that, in order to satisfy himself that the Gas Company was fulfilling the project, he had asked for the figures showing the increases in the use of industrial gas throughout the period and the amount of money spent on the project. Those figures, which had been given previously by Mr. Halkett, were very impressive figures.

Having obtained Sir Alexander's view that the Gas Company had been spending money in the public interest in constructing the grid, Mr. Thomas put questions in which he sought to show that the Gas Company, being largely dependent on coke oven gas for purification and supply to its consumers (for it was manufacturing little gas itself), had been spending money merely to bring gas from the coke ovens to its own mains rather than in the development of the grid as recommended by the Area Gas Supply Committee. Mr. Tyldesley Jones intervened, however, and said that that had not yet been given in evidence. Later he pointed out that up to July 9, 1934, the total mileage of grid mains constructed was 13¼, and that 10 coke oven plants had either been connected or were being connected.

In the course of his re-examination, Sir Alexander said it was the intention that a coke oven owner should be free to use his own gas within the works which he owned completely, but that the available gas beyond the quantity required for that purpose should go to the grid, if it were available, and, thereby, the coke oven owner would be paying his share of that service and convenience.

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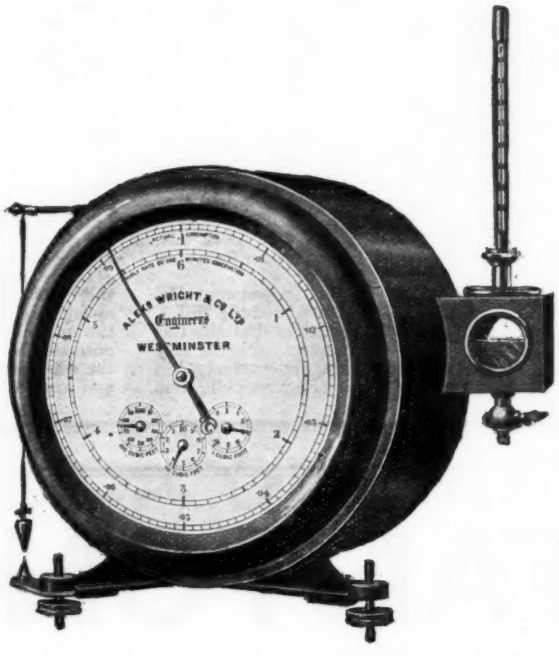

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Gas Markets and Manufactures

Stock Market Report.

[For Stock and Share List, see later page.]

Despite the commencement of the holiday season the Stock Exchange had a busy week. Gilt-edged securities, rubbers, and home rails were especially active, while the previous good tone in most of the other sections was well maintained. Several British Government stocks reached new high records, and some leading industrials made appreciable improvements, notably Coates, Gallaher, and Dunlops.

There were no items of special interest in the Gas market, though an appreciable volume of business was recorded and several upward price movements took place. The recent offer by the South Eastern Gas Corporation led to a sharp rise in the two Hastings stocks; the 5% converted gaining 10½ to 160, and the 3½% rising 5½ to 125½. Bournemouth 5% debenture hardened 3 to 124½, and it will be seen in the Stock and Share List that several other issues rose from 1 to 2 points.

In the Report published a fortnight ago a table was given comparing the current prices of the leading ordinary stocks with those current a year ago, and the following list of permanent debenture stocks shows how these have fared over a similar period. It is interesting to note that the 3% debentures of the Metropolitan Companies have each advanced 8 points, yielding at current prices about £3 11s.%, and the 4% and 5% debentures of the other companies are only 1½ or 2 points higher and yield about 10s.% more. Purchases of Southampton 4% and Tottenham 4% are worth consideration at the present prices.

—	Middle Market Quotation.		Increase Over 1933.
	1933. July 14.	1934. July 14.	
Bournemouth 5 p.ct.	122½	124½	2
Bristol 5 p.ct.	120½	122	1½
Commercial 3 p.ct.	76½	84½	8
Croydon 5 p.ct.	120½	121½	1
Gas Light 3 p.ct.	77½	85½	8
Liverpool 4 p.ct.	101½	103	1½
Mid-Southern 4 p.ct.	101½	102½	1
South Metropolitan 3 p.ct.	76½	84½	8
South Suburban 5 p.ct.	120½	122½	2
Southampton 4 p.ct.	101½	101½	..
Tottenham 4 p.ct.	98½	100½	2
Wandsworth 5 p.ct.	120½	122½	2

Current Sales of Gas Products.

The London Market for Tar Products.

LONDON, *July* 16.

There is little of interest to report in the tar products market, and values generally remain unchanged as follows:

Pitch about 58s. per ton f.o.b.
Creosote 4d. to 4¼d. per gallon.
Refined tar 4d. to 4¼d. per gallon in bulk at makers' works.
Pure toluole 2s. 4d. to 2s. 5d.; pure benzole 1s. 9d. to 1s. 10d.; 95/160 solvent naphtha, 1s. 7d. to 1s. 8d.; and 90/160 pyridine, 7s. to 7s. 6d., all per gallon naked at makers' works.

Tar Products in the Provinces.

July 16.

The average prices of gas-works products during the week were: Gas-works tar, 25s. to 30s.; Pitch—East Coast, 55s. to 57s. 6d. f.o.b. West Coast—Manchester, Liverpool, Clyde, 55s. to 57s. 6d.* Toluole, naked, North, 1s. 9d. to 1s. 11d. Coal-tar crude naphtha, in bulk, North, 6½d. to 6¾d. Solvent naphtha, naked, North, 1s. 5½d. to 1s. 6d. Heavy naphtha, North, 10d. to 11d. Creosote, *ex* works, in bulk, North, liquid and salty, 3¼d. to 3½d.; low gravity, 3½d. to 3¾d.; Scotland, 3¼d. to 3⅜d. Heavy oils, in bulk, North, 3¾d. to 4¼d. Carbolic acid, 60's, 1s. 11d. to 2s. 1d. Naphthalene, £10 to £11. Salts, 55s. to 75s., bags included. Anthracene, "A" quality, 2½d. to 3d. per minimum 40%, purely nominal; "B" quality, unsalable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *July* 14.

Owing to local holidays, production has ceased to some extent. New business is on a moderate scale, with quotations fairly steady.

Crude gas-works tar.—Actual value is 34s. to 36s. per ton *ex* works in bulk.

Pitch.—Little interest is being displayed and values are nominal at 45s. per ton f.o.b. Glasgow for export and about 42s. 6d. per ton *ex* works in bulk for home trade.

Refined tar.—Quotations are unchanged at 3d. to 3¼d. per gallon f.o.r. maker's works naked.

Creosote oil.—If anything, market is a fraction easier, although quotations are unchanged. B.E.S.A. Specification oil is 4d. to 4½d. per gallon; low gravity, 4½d. to 4¾d. per gallon; and neutral oil, 4¼d. to 4½d. per gallon; all f.o.r. at makers' works in bulk.

Cresylic acid.—Production is low and values are firm. Pale, 97/99%, is 1s. 2d. to 1s. 3½d. per gallon; dark, 97/99%, 1s. to 1s. 1d. per gallon; pale, 99/100%, 1s. 4d. to 1s. 5d. per gallon f.o.r.

Crude naphtha.—Production is well catered for at 4¾d. to 5¼d. per gallon, according to quality.

Solvent naphtha.—90/160 grade is 1s. 3d. to 1s. 4d. per gallon, and 90/190 grade 8d. per gallon.

Motor benzole.—Price is steady here at 1s. 5d. to 1s. 6d. per gallon.

Pyridines.—90/160 grade is 6s. to 7s. per gallon, and 90/140 grade is 7s. to 8s. per gallon (nominal).

Benzole Prices.

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.	
Crude benzole	0	9	to 0	9½	per gallon at works	
Motor ,,	1	3½	,, 1	4	,,	,, ,,
90% ,,	1	4	,, 1	4½	,,	,, ,,
Pure ,,	1	7½	,, 1	8	,,	,, ,,

Trade Notes.

G. A. Harvey & Co. (London), Ltd.

On Saturday, July 7, Messrs. G. A. Harvey, who specialize in the manufacture of perforated metal, screening plant and steel-plate work, celebrated the sixtieth anniversary of their foundation.

Wholesale Fittings Company, Ltd.

This firm announce that on Monday, July 23, they are opening a new depôt at 9, Station Road, Balham, S.W. 12 (Tel.—Streatham 5152), where a full range of gas, electrical, and wireless goods will be available for their customers.

New Spiral Holder for Shrewsbury.

The Shrewsbury Gas Light Company have placed an order with Messrs. Firth, Blakeley, Sons & Co., Ltd., of Vulcan Ironworks, Church-Fenton, for a ¾-million c.ft. capacity spiral guided gasholder and steel tank, to be fitted with their well-known "Vulcan" spiral carriages.

Robert Dempster & Sons, Ltd.

Messrs. Robert Dempster & Sons have just issued a series of photographic reproductions, illustrating their various specialities, which include gasholders, carbonizing plant, purifiers, conveying, handling, and screening plant, wagon tippers, &c. Additional subjects will be dealt with from time to time.

Contracts Advertised To-Day.

Coal.

Belfast Gas Department. [p. 168.]
Marple Gas Department. [p. 168.]
Newton-in-Makerfield Urban District Council. [p. 168.]

Pipes and Fittings.

Milford Haven Gas and Water Department. [p. 168.]

New Capital Issues.

Watford and St. Albans Gas Company.—The recent new issue of capital by this Company, which was advertised in these columns, was largely over-subscribed. The tenders received for the £113,564 of 5% preference stock amounted to £130,548, the highest accepted being £125 10s. and the lowest (which received only partial allotment), £123 10s. 6d.—average price, £123 15s. 1d. In the case of the £50,000 of 4% redeemable (1963) debenture stock, the tenders received amounted to £193,560, the highest price accepted being £107, and the lowest (receiving only partial allotment), £105 2s.—average price £105 5s. 6d. The allotment letters were posted on July 17, from which date permission was granted to deal on the Stock Exchange.

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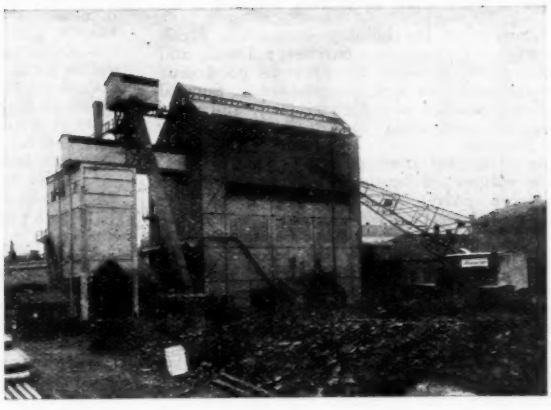

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STOCK AND SHARE LIST.

Official Quotations on the London and Provincial Stock Exchanges.

Issue. £	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations. July 14.	Rise or Fall on Week.	Transactions. Lowest and Highest Prices During the Week.
1,551,868	Stk.	Apl 9	7	7	Alliance & Dublin Ord. ...	130—140	+2	139½—139⅝
374,000	,,	June 25	4	4	Do. 4 p.c. Deb. ...	90—100	...	
557,655	,,	Mar. 5	7	7	Barnet Ord. 7 p.c.	167—172	...	170
300,000	1	May 7	1/9⅔	1/9⅔	Bombay, Ltd.	27/6—29/6	...	28/6 - 28/9
178,480	Stk.	Feb. 19	9½	9½	Bournemouth sliding scale	203—208	...	
550,050	,,	,,	7	7	Do. 7 p.c. max. ...	167—172	+2	170
439,160	,,	,,	6	6	Do. 6 p.c. Pref. ...	142—147	...	...
50,000	,,	June 11	3	3	Do. 3 p.c. Deb. ...	78—83	...	...
262,025	,,	,,	4	4	Do. 4 p.c. Deb. ...	103—108	...	107½
335,000	,,	,,	5	5	Do. 5 p.c. Deb. ...	122—127	+3	124
357,900	,,	Mar. 5	7½	7½	Brighton, &c , 6 p.c. Con. ...	161—166	...	164
540,000	,,	,,	6⅔	6⅔	Do. 5 p.c. Con. ...	151—156	...	153½
195,500	,,	,,	6	6	Do. 6 p.c. B. Pref.	140—145	...	142½
1,487,500	,,	July 9	5	5	Bristol 5 p.c. max.	116—118a*	−2	...
120,420	,,	June 11	4	4	Do. 1st 4 p.c. Deb. ...	102—105a	...	...
217,870	,,	,,	4	4	Do. 2nd 4 p.c. Deb. ...	102—105a	...	...
328,790	,,	,,	5	5	Do. 5 p.c. Deb.	121—123a	...	...
855,000	,,	Apl. 9	7	8	British Ord.	155—160	...	158½
100,000	,,	June 11	7	7	Do. 7 p.c. Pref.	154—159	...	...
350,000	,,	,,	5½	6½	Do. 5½ p.c. Pref.	104—109	...	...
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...	...
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	107—112	...	...
160,000	,,	June 11	5	5	Cambridge 5 p.c. Deb. ...	115—120	...	...
100,000	10	22 May '33	6	4	Cape Town, Ltd.	2—4	...	...
100,000	10	Nov 6	4½	4½	Do. 4½ p.c. Pref. ...	5—7	...	...
150,000	Stk.	June 25	4½	4½	Do. 4½ p.c. Deb. ...	93—98	...	...
626,860	,,	Feb. 19	6	6	Cardiff Con. Ord.	128 - 133	...	...
237,860	,,	June 11	5	5	Do. 5 p.c. Red. Deb.	103—108	...	...
157,150	,,	Feb 19	5	6½	Chester 5 p.c. Ord.	112½—122½b	...	...
98,936	1	May 7	2/-	2/-	Colombo, Ltd. Ord.	1 5/16—1 11/16	...	35/6
24,500	1	,,	1/4⅞	1/4⅞	Do. 7 p.c. Pref. ...	18/6 20/6	...	...
609,204	1	Mar. 19	-/11'48	-/11'48	Colonial Gas Assn. Ltd. Ord.	19/6 - 21/6	...	...
296,053	1	,,	1/8'30	1/8'30	Do. 8 p.c. Pref.	23/6—25/6	...	...
1,775,005	Stk.	Feb. 19	5	6½	Commercial Ord.	120—125	...	121⅝—123
475,000	,,	June 11	3	3	Do. 3 p.c. Deb. ...	82 - 87	+2	84—85
286,344	,,	Mar. 5	5	5	Do. 5 p.c. Deb. ...	120—125	...	...
807,560	,,	Feb. 19	7	7	Croydon sliding scale ...	154—159	...	...
569,590	,,	,,	5	5	Do. max. div.	105—110	...	...
620,385	,,	June 25	5	5	Do. 5 p.c. Deb.... ...	119—124	...	...
542,270	,,	Mar. 5	7	10	Derby Con.	175—180e	...	...
55,000	,,	June 25	4	4	Do. 4 p.c. Deb.	97 - 100e	...	...
209,000	,,	Feb 19	5	5	East Hull Ord. 5 p.c. ...	106 - 111	...	...
181,625	,,	Mar. 5	6	6	East Surrey Ord. 5 p.c. ...	126 - 131	...	...
175,609	,,	June 11	5	5	Do. 5 p.c. Deb. ...	116 - 121	...	...
1,002,180	,,	Apl 9	†5	†7	European, Ltd.	123 128	...	126
19,342,763	,,	Feb. 19	5⅜	5⅜	Gas Light & Coke 4 p.c. Ord.	26/10½ 27/4½f	...	26/10½ - 27/3
2,600,000	,,	,,	3⅛	3⅛	Do. 3⅛ p.c. max.	87 - 90	...	87½—88½
4,477,106	,,	,,	4	4	Do. 4 p.c. Con. Pref. ...	104 - 107	...	106½—107½
6,102,497	,,	May 28	3	3	Do. 3 p.c. Con. Deb. ...	84 - 87	...	84½—87
5,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	115—118	...	117
3,500,000	,,	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	113—116	...	114—115½
270,466	,,	Mar. 5	6	6	Harrogate New Cons. ...	125—130	...	...
82,500	,,	Mar. 5	7	7	Hastings & St. L. 5 p.c. Conv.	165—165	+10½	...
258,740	,,	,,	5⅛	5⅛	Do. 3⅛ p.c. Conv	120—130	+5½	...
140,000	1	Apl. 23	1/7⅛	1/7⅛	Hongkong & China, Ltd. ...	1⅝—1⅞	...	...
213,200	Stk.	Mar. 5	6	6	Hornsey Con. 3½ p.c. ...	128—133	...	132
5,500,000	,,	May 28	10	14	Imperial Continental Cap.	209 - 214	...	210½—215
223,180	,,	Feb. 5	3½	3½	Do. 3½ p.c. Red. Deb.	89 - 94	...	90½—92
235,242	,,	Mar. 5	8½	8½	Lea Bridge 5 p.c. Ord. ...	169 - 174	...	...
9,167,410	,,	Mar. 5	6	6	Liverpool 5 p.c. Ord. ...	133 134b	...	...
245,500	,,	June 11	5	5	Do 5 p.c. Red. Pref. ...	101- 111b	...	...
306,083	,,	Jan. 15	4	4	Do. 4 p.c. Deb. ...	102 - 104b	+½	...
165,736	,,	Feb 19	9	10	Maidstone 5 p.c. Cap. ...	180 - 190	...	...
56,176	,,	June 25	3	3	Do. 3 p.c. Deb. ...	71—76	...	...
75,000	5	May 28	†10	†10	Malta & Mediterranean ... Metropolitan (of Melbourne)	..	...	...
392,000	—	Apl. 3	5½	5½	5½ p.c. Red. Deb.	98 - 103	...	...
231,978	Stk.	Feb. 19	b	b	M. S. Utility "C." Cons. ...	113 - 118	...	...
818,657	,,	,,	4	4	Do. 4 p.c. Cons. Pref.	96 101	+1	99—100
360,075	,,	June 11	4	4	Do. 4 p.c. Deb. ...	100—105	...	...
148,955	,,	,,	†5	†5	Do. 5 p.c. Deb. ...	119 - 124	...	...
675,000	,,	May 28	†6	†3	Montevideo, Ltd.	60 - 65	...	62
2,061,315	,,	Mar. 5	5	5½	Newcastle & Gateshead Con.	25/3 - 26/-d/	...	...
682,856	,,	,,	4	4	Do. 4 p.c. Pref. ...	100 - 101d	...	...
776,706	,,	June 11	3½	3½	Do. 3½ p.c. Deb. ...	90½—91½d	...	...
277,285	,,	May 7	5	5	Do. 5 p.c. Deb. '48 ...	105—107d	...	...
274,000	,,	Feb. 19	5	5	Newport (Mon.) 5 p.c. max.	107—109a	...	...
204,940	,,	Mar. 19	7½	7½	North Middlesex 6 p.c. Con.	155—160	...	...
396,160	,,	Feb. 5	5	5	Northampton 5 p.c. max. ...	104—109	...	...
300,000	,,	May 7	†7	†7	Oriental, Ltd.	155—160	...	...
416,617	,,	June 11	8	8	Plym'th & Stonehouse 5 p.c.	167 - 172	...	170—171½
504,416	,,	Feb. 19	8	8	Portsm'th Con. Stk. 4 p.c. Std	168 - 173	...	170½—172
241,446	,,	,,	5	5	Do. 5 p.c. max. ...	105—110	...	107½
114,000	,,	Feb. 19	5	5	Preston 5 p.c. Pref.	103—108	...	...
686,312	,,	Jan. 22	4	4	Primitiva 4 p.c. Rd. Db. 1911	87 - 92	...	91¼
389,813	,,	June 25	4	4	Do. 4 p.c. Cons. Deb.	87 - 92	...	...
150,000	10	Mar. 19	6	6	San Paulo 6 p.c. Pref. ...	7 - 8	...	...
1,736,968	Stk.	Mar. 19	6	6	Sheffield Cons.	139 - 141e	...	...
95,000	,,	July 9	4	4	Do. 4 p.c. Deb.	100 - 104e*	−1	...
133,201	,,	Feb. 19	5	5	Shrewsbury 5 p.c. Ord. ...	135—140	...	...
90,000	10	May 28	‡4	‡3	South African	2—4	...	...
6,709,895	Stk.	Feb. 19	5	7	South Met. Ord.	134½—137½	+½	135½—137½
1,135,812	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	142—147	+2	143½—145
850,000	,,	,,	4	4	Do. 4 p.c. Irred. Pf.	103—107	...	106
1,895,445	,,	June 25	3	3	Do. 3 p.c. Deb ...	83—86	...	86
1 000,000	,,	July 9	5	5	Do. 5 p.c. Red. Deb.	112—115*	−2	...
209,820	,,	Mar. 5	8½	8½	South Shields Con.	166—168d	...	...
1,543,795	,,	July 9	6	6	South Suburban Ord. 5 p.c.	130—133*	−1	131 133
512,825	,,	,,	5	5	Do. 5 p.c. Pref.	116—121*	−2	...
300,000	,,	,,	4	4	Do. 4 p.c. Pref.	101—106*	−2	...
868,837	,,	June 11	5	5	Do. 5 p.c. Deb.	120—125	...	124½
100,000	,,	,,	4	4	Do. 4 p.c. Deb.	102—107	...	...
647,740	,,	Mar 5	5	5	Southampt'n Ord. 5 p.c. max.	110—115	...	...
121,275	,,	June 11	4	4	Do. 4 p.c. Deb.	99—104	...	...
350,000	,,	Mar 5	5½	5½	Swansea 5½ p.c. Red. Pref.	107—112	...	...
200,000	,,	June 11	6½	6½	Do. 6½ p.c. Red. Deb.	100—105	...	...
1,076,490	,,	Mar 5	6½	6½	Tottenham and District Ord.	153—158	+2	155½—156
409,835	,,	,,	5½	5½	Do. 5½ p.c. Pref. ...	126—131	...	...
62,235	,,	,,	5	5	Do. 5 p.c. Pref. ...	115—120	...	...
199,005	,,	June 11	4	4	Do. 4 p.c. Deb. ...	98—103	...	...
85,701	,,	Apl. 9	6	6	Tuscan, Ltd. 6 p c. Red. Db.	90—100	...	...
349,110	,,	Mar. 5	7	7	Uxbridge, &c., 5 p.c. ...	150—155	...	...
88,330	,,	,,	5	5	Do. 5 p.c. Pref. ...	112—117	...	...
1,322,220	,,	Mar. 5	7	7	Wandsworth Consolidated	157—162	...	157½ - 160
1,096,373	,,	,,	5	5	Do. 5 p.c. Pref.	119—124	...	122½—123½
1,317,964	,,	June 11	5	5	Do. 5 p.c. Deb.	120—125	...	...
158,400	,,	Mar. 5	5	6g	Winchester W. & G. 5 p.c. Con.	115—120	...	119½

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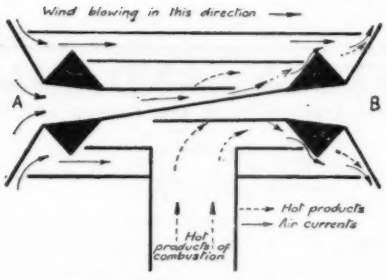

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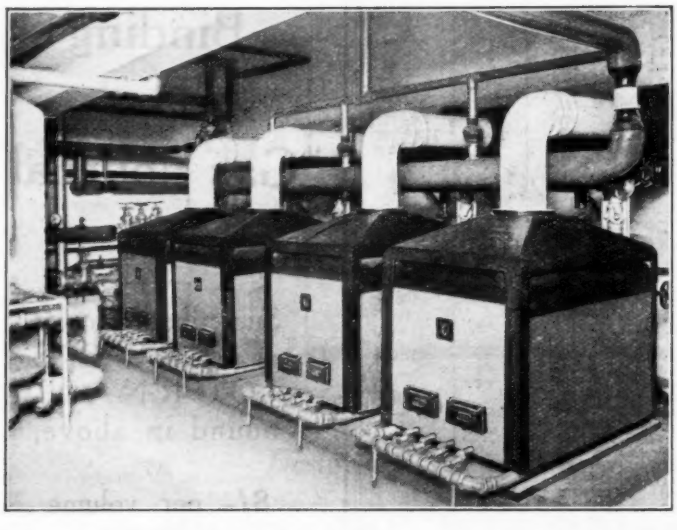

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